

Imperial Armies of the Thirty Years' War (1)

Infantry and artillery



Vladimir Brnardic • Illustrated by Darko Pavlovic

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Dedication

To my lovely girls: Teodora, Helena, Lea and Lara

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Artist's note

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IMPERIAL ARMIES OF THE THIRTY YEARS' WAR 1618-48 (1)

INFANTRY AND ARTILLERY

INTRODUCTION

The Thirty Years' War began in Bohemia in 1618 as a religious conflict between Roman Catholics and Protestants over the succession to the throne. While religious hatreds remained at the core, it broadened into a political struggle between the Catholic Habsburg imperial dynasty of the German (Austrian) Empire and a shifting constellation of other powers, both Protestant and Catholic, over the domination of continental Europe. At various periods separate wars – between the Empire and Transylvania, between Spain and France and Holland, between Sweden and Poland and Denmark – became subsumed within the great central struggle that raged over most of central and northern Europe. The devastation and loss of life, particularly in Germany, reached levels unseen since the Mongol invasion of the 13th century, leaving wide regions literally depopulated by violence, famine and plague. The Thirty Years' War and its consequences were the central facts of European history for half a century, and it was also the arena within which the science and practice of Western warfare developed.

Unlike other major European nations such as Sweden or France, only the Habsburg powers – the German Empire and Spain – participated throughout the entire Thirty Years' War. When he was elected in 1619 the Emperor Ferdinand II had virtually no army to his name; when this devastating historical period came to a final end in 1648 the Imperial army had 70,000 men under arms, while their opponents Sweden, France and Hessen-Kassel had 140,000, but despite this imbalance the Habsburg forces were sufficient to ensure the Emperor an equal bargaining position during the negotiation of the Peace of Westphalia. The Thirty Years' War thus marks the emergence of the German Habsburgs as a major European power.

Prior to this time, the early modern Habsburg monarchy was unable to create a strong army under the Emperor's direction due to the structure of the Empire, with its competing provincial interests and power struggles. The various Estates (provincial noble assemblies) were determined to cling on to their historic rights and privileges, and consequently they opposed every attempt to create a standing army controlled by the Emperor, since this would support the very centralization that they had always sought to prevent. The military strength of the Habsburg Empire was largely based in the Austrian and Bohemian Estates assemblies, which not only financed

The Imperial *Generalissimus* Albrecht Wenzel Eusebius von Wallenstein, Duke of Friedland and Mecklenburg (1583-1634), was the best-known Imperial commander and military entrepreneur of the period. The initial capital on which his great wealth was founded came from an advantageous marriage to an heiress who died after a few years. A brilliant organizer, and an able general despite being a firm believer in astrology, he became a threat to the Imperial throne when his boundless ambition led him to begin a politico-military conspiracy. He was assassinated by more loyal (or far-sighted) British mercenary officers, supposedly being killed with a halberd by an English captain named Walter Devereux.



both the troops and the fortresses defending the Military Frontier facing the Ottomans in Croatia and Hungary, but also played a key role in recruiting and paying the 'extraordinary troops' that were raised in the event of actual war.

THE COURSE OF THE WAR IN OUTLINE

The Bohemian phase, 1618–21

Already preoccupied with the Uskok War, the Emperor-elect Matthias could barely manage to raise 6,000 troops following the Defenestration of Prague in 1618 and the outbreak of the Protestant Bohemian revolt. The rebels were joined by much of Upper and Lower Austria, led by its mostly Lutheran and Calvinist nobility, and after Matthias' death in March 1619 the Protestant commander, Jindrich Matyas, Graf von Thurn, led an army to the walls of Vienna itself. To the east, the Protestant Prince of Transylvania, Bethlen Gábor (supposedly a vassal of the Emperor), led a lightning campaign into Habsburg Hungary, supported by the Ottoman sultan. Charles Bonaventure de Longueval, Count of Bucquoi, the commander of the Imperial army, defeated the forces of the Protestant Union under Ernst Graf von Mansfeld at the battle of Sablat in June 1619, forcing Thurn to abandon his siege of Vienna.

On 29 August 1619, Ferdinand of Styria was elected Emperor as Ferdinand II; in September 29,500 Imperial troops were in the field under Graf von Bucquoi, but they were not sufficient to break the Protestant army under the 'Winter King' Frederick V of Bohemia, which numbered 23,000 troops plus another 12,000 from Transylvania. Only the support of the Catholic League, led by Duke Maximilian I of Bavaria, and its army under Johann Tserclaes, Graf von Tilly, gave the Imperial forces the advantage in numbers and enabled them to crush the rebel army at the battle of White Mountain in November 1620. The first phase of the war ended in December 1621, when the Prince of Transylvania and Emperor Ferdinand II signed the Peace of Nikolsburg, which gave Transylvania a number of territories in Royal Hungary. During this opening period of

During the Thirty Years' War full-scale battles and sieges were actually rare. Most campaigns were 'affairs of posts and ambuscades', involving small forces – often garrisons attempting to maintain or extend their control over an area in order to extract supplies. Military and civilian commercial convoys were regular targets; this painting by Pieter Snayers depicts such an ambush. Note the musketeers by the bridge (left), and one mounted harquebusier in the lower left corner. (HGM)



the Thirty Years' War military authority finally passed to the Emperor, a process that continued during the 'Palatine phase' of the war (1621–23), in which Imperial troops did not play a significant part.

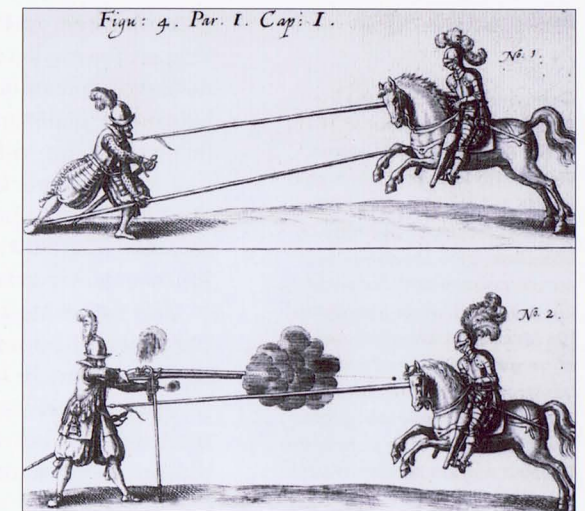
Financing the army, 1621–24

During this era of warfare campaigns were largely seasonal, and at the end of each campaign military formations were disbanded. However, by the end of the 16th century it had become clear that this repeated disbanding and re-enlistment of troops was both costly and ineffective, so increasingly units were retained throughout the winter months. The Thirty Years' War saw this become more common, precisely because after the crushing of the Estates revolt in Bohemia and Moravia these provinces were forced to make a 'contribution'. Legally this was a punishment, but in reality it provided the financial basis for maintaining an Imperial standing army. By contrast, agreement was reached with the Austrian Estates over a new military tax. When Imperial troops withdrew after defeat or to winter quarters in the Emperor's Austrian provinces there was always danger that they would simply try to live off the land there. To avoid the consequent economic distress, the Estates agreed to provide regular supplies to the troops in cash and/or kind. This supposedly 'emergency' measure soon became permanent, and a key additional source for financing the Imperial army.

Although Emperor Ferdinand II was now theoretically taking a centralized grip on the Empire's military power, in practice he still lacked sufficient funds, administrative personnel and infrastructure to set up and maintain a powerful army under his own direction. Chronically short of money, the Emperor was always forced to rely on 'war contractors' – private military entrepreneurs who provided the Emperor with large numbers of troops for offensive operations partly or entirely at their own cost. The greatest of these was Albrecht von Wallenstein, a wealthy Bohemian nobleman and convert to Catholicism, who was presented with a great opportunity by the imminent outbreak of the Danish phase of the Thirty Years' War (1625–29).

The Danish phase: the rise of Wallenstein, 1625–30

The financial problems had forced the reduction of the Imperial army from 22 to 14 infantry regiments and from 25 to 9 cavalry regiments in 1621–22, with a further reduction to just 11 infantry and 7 cavalry regiments in 1624. Faced with a new threat, and still unhappy about his dependence on the Estates and the Catholic League led by Maximilian of Bavaria, the Emperor gladly agreed to Wallenstein's proposal to raise a separate Imperial army of 24,000 men at no cost to the Imperial treasury. Wallenstein's financial agent Hans de Witte was to advance the cash for equipment and pay, which would be reimbursed later from taxes and reparations imposed on occupied enemy territories. In this way, Wallenstein introduced a new means of supplying and paying the troops by the efficient system of exacting contributions, summed up by the motto 'When the army marches, the enemy pays.'



Pike and musket in defence against cavalry. (Wallhausen, 1615)

Mannequin of a pikeman in Spanish-Dutch armour, c.1620, in the Army History Museum, Vienna. He is dressed in a shirt visible only by the wide collar, a brown jacket, baggy red breeches, blue stockings with purple ribbons tied under the knee, and off-white gauntlets. His blackened armour consists of gorget, breast- and backplates, pauldrons at the shoulder and tassets at the belly and groin. The most distinctive item is the Spanish morion helmet. (HGM)



Wallenstein was a skilful administrator, and in return for providing the Emperor with an army he was allowed to appoint his own officers and to be reimbursed for his expenses, while his system of 'contributions' from provincial rulers, together with the reliable organization of supplies, facilitated the recruitment of troops, reduced their desertion rate, maintained better discipline among them, and lessened their depredations on the civilian population. In just a few weeks Wallenstein managed to raise an army of 14,800 infantry and 7,600 cavalry, in which three dukes and two Reichsgrafs served as colonels.

The following year, 1625, Wallenstein – now Duke of Friedland and Governor of Bohemia, with vastly increased estates and authority to mint his own coinage – was appointed commander-in-chief of all Imperial troops in the Holy Roman Empire and the Low Countries. By advancing the money to his colonels for the raising of their regiments, Wallenstein bound these senior officers to him personally, while his own Duchy of Friedland was turned into a huge centre of armament and supply services. Wallenstein's new army enjoyed its first success in April 1626 when it defeated the Protestant commander Graf Ernst von Mansfeld near Dessau Bridge, but the Imperial general was reproached for having allowed Mansfeld to escape. Wallenstein tendered his resignation, and only an extension of his powers and permission to increase the army to 70,000 men kept him at his post.

In 1626 he and his expanded army forced the Transylvanian prince Gábor Bethlen (who had launched two more campaigns against the Emperor in 1623–24 and 1626) to conclude the Peace of Pressburg. In July 1627 Wallenstein managed to drive the Danes out of Silesia; then, supported by the Catholic League's general Graf von Tilly, he conquered Mecklenburg, Holstein, Schleswig and the whole of continental Denmark, as his army grew to over 100,000 men. In lieu of reimbursement of his expenses he was granted not only the Silesian principality of Sagan but also the Duchy of Mecklenburg as a hereditary Imperial fiefdom. His set of titles was augmented by his appointment as Admiral of the Imperial Navy and of the North and Baltic Seas in 1628, although this became redundant when one of his subordinates, Hans Georg von Arnim, failed to capture Stralsund, the intended future northern base of the Imperial Navy. Nevertheless, Wallenstein managed to knock Denmark out of the war, and by the time of the conclusion of the Treaty of Lübeck in 1629 and during the following year his army had grown to the then-almost incredible size of 150,000 men. It comprised 28 infantry and 22 cavalry regiments in 1629, with an additional 15 infantry and 9 cavalry regiments the following year.

The Swedish phase: the defeats of 1631–32

However, the failure to take Stralsund gave the rebellious German princes an opportunity to launch a political counter-attack against the Emperor, which they had been preparing for some time. Although their ostensible target was Wallenstein, their main grievance was the creation of an Imperial army, which had not existed since medieval times and which now constituted a direct threat to the powers of the Empire's nobility. The Electoral Diet at Regensburg in 1630 threatened the Emperor with the combined opposition of the Catholic and Protestant princes under French leadership, and their refusal to elect his son Ferdinand (III) as Holy Roman Emperor, unless Wallenstein was dismissed and his army virtually disbanded. Under such pressure, Ferdinand II was forced to dismiss his commander-in-chief and reduce the army by 75 per cent.

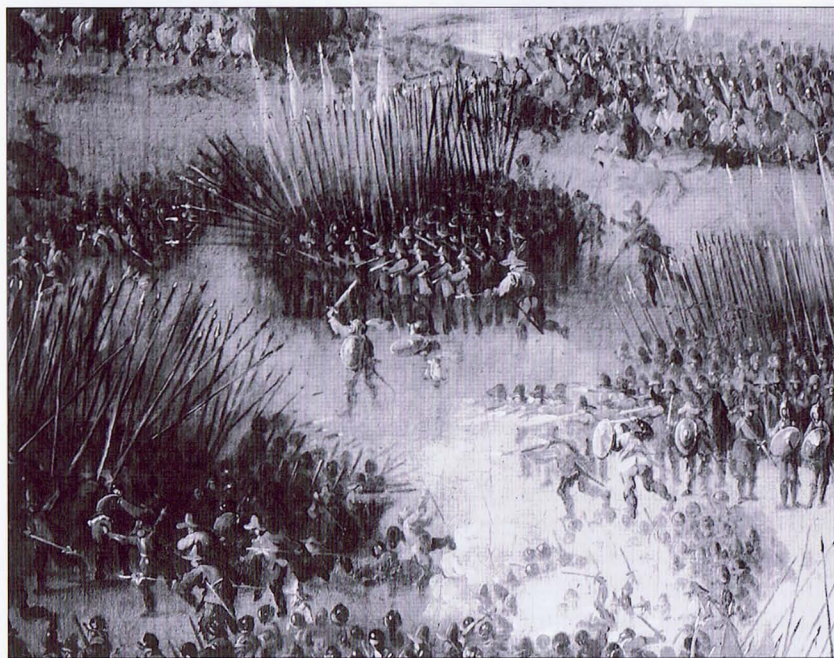
Despite a new threat emerging in July 1630, when the Swedish King Gustavus II Adolphus invaded Germany, Wallenstein was replaced by Tilly as commander-in-chief of the combined – but greatly reduced – armies of the Emperor and the Catholic League. When a combined force of 25,000 troops under Tilly and Pappenheim stormed and sacked the city of Magdeburg in May 1631, massacring at least 20,000 of the 30,000 civilian inhabitants, public opinion turned against the Habsburg Emperor, prompting many German states and princes to ally with the Swedish king. Underestimating this new enemy, Tilly suffered a devastating defeat at the first battle of Breitenfeld in September 1631, which cost him the bulk of his veteran troops. Gustavus Adolphus's victory at the battle of Rain am Lech, where Tilly was fatally wounded, and his subsequent advance to Augsburg and Munich, brought the Swedish king – now hailed as the 'Lion of the North' and the saviour of Protestantism – to the edge of the Habsburg monarch's own 'hereditary lands', and nothing seemed to stand in the way of his marching through the gates of the Imperial capital, Vienna.

The return of Wallenstein, 1632–34

In desperation the Emperor turned to Wallenstein, and offered to restore him to command of what remained of the Imperial army. In a matter of weeks Wallenstein was able to raise another 40,000 men, and forced the Emperor to concede his demands that he be given supreme command of all Imperial troops, whose officers were to be directly appointed by himself. Having cleared Bohemia of the Saxons under Arnim within a few weeks, Wallenstein then used a defensive strategy to manoeuvre Gustavus Adolphus out of Bavaria and Franconia during 1632, then detaching the Elector Johann Georg I from the Swedish alliance by occupying most of Saxony. Up to this point Wallenstein had avoided a direct confrontation with the Swedish king, but Gustavus Adolphus now forced him to battle at Lützen in November 1632. Although the Swedes were victorious, Gustavus himself was killed.

As his power had grown so had Wallenstein's political ambitions, and he actively conspired against the Emperor. His plan was to pacify the entire Holy Roman Empire with himself as the arbiter of the following peace, cementing his position as the real power behind the throne. However, in order to achieve his ambitions he had to keep his army intact and under his personal control. He quartered his troops in Habsburg territory (Bohemia, Silesia and Austria) and refused to move, even when the Swedes, after overrunning Alsace, Franconia, Swabia and Bavaria, crowned

The battle of Grancourt was the third phase of Marshal Piccolomini's victory over the French Marshal Feuquières in June 1639, when the latter was besieging Thionville (Diedenhofen). Note the Imperial masses, with pikemen flanked by musketeers, and particularly – at low right, behind skirmishing calivermen – the 'bucklers' in the front rank of a formation, equipped with helmets and shields and armed with swords. Painting by Pieter Shayers. (HGM)



their success with the capture of the key fortress of Regensburg in November 1633. Wallenstein also refused to support a Spanish force in south-western Germany. He fought his last campaign in Silesia and Brandenburg in October 1633, really just for political reasons to frighten Brandenburg out of the Swedish alliance. Simultaneously, Wallenstein conducted his own peace negotiations with Saxony, Brandenburg, Sweden and France, making various and often conflicting offers to the various ambassadors; consequently, he soon lost his credibility with all parties.

From the Emperor's viewpoint, Wallenstein had become a rebel and a traitor. Blinded by his belief in astrological predictions, Wallenstein fatally misjudged the loyalty of his generals. Many senior officers – among them Octavio Piccolomini, Matthias Gallas, Johann Graf Aldringen and Melchior von Hatzfeldt – calculated that their interests were better served by backing the Emperor. Only Wallenstein's brother-in-law Adam Trčka, and Field Marshals Christian von Ilow and Heinrich Holk, were prepared to follow Wallenstein, and this loyal group was further reduced when Holk died of the plague in September 1633. At the beginning of 1634 Wallenstein gathered about 50 generals and colonels in Pilsen to prepare his revolt. On 12 January they pledged themselves to stand by him 'so long as he remained in the Emperor's service', but in the written declaration that they were made to sign on the same day this stipulation was omitted. Piccolomini's report caused the Emperor to sign a letter patent on 24 January, which relieved Wallenstein from command and replaced him with Gallas, granted an amnesty to all signatories of the Pilsen declaration except Trčka and Ilow, and ordered the capture or execution of Wallenstein and his chief co-conspirators. Wallenstein had already left Pilsen to join the Swedes and Saxons at Eger, where on 25 February he, Trčka, Ilow and other officers were murdered by soldiers of the Irish mercenary general Walter Butler and the Scottish colonels Walter Leslie and John Gordon.

The Emperor could now restore his authority over the Imperial troops, and to avoid similar situations in the future 'contracting' would only be permitted at regimental level, and supreme command would always be exercised by members of the Habsburg family. The Emperor's son, now King Ferdinand III of Hungary, was appointed commander-in-chief of the reconstituted Imperial army, which after additional recruiting numbered 18 infantry regiments, 20 cavalry regiments and 5 regiments of Croatian cavalry – a total of around 60,000 men – with 36 heavy and 116 light guns. At the first battle of Nordlingen in September 1634 part of it, bolstered by 18,000 professional Spanish troops, won a great victory over the combined Protestant armies of Sweden and their German allies (the Bernadines); this was one of the most devastating defeats sustained by the Protestants during the whole war. The Swedish army in Germany was crippled, and the battle marked the end of Swedish efforts to dominate Germany. The German Protestant princes made a separate peace with the Emperor by the Treaty of Prague in May 1635.

The French phase: 1635–45

France under King Louis XIII was in a precarious position. Habsburg Imperial forces largely controlled Germany, while the Spanish Habsburgs had troops securely on the west bank of the Rhine and in Spain itself, leaving France effectively surrounded. The French king's chief minister, Cardinal Richelieu, decided to take a more active role in the conflict by arranging a French declaration of war on Spain in May 1635; this opened a second front in the Catholic Low Countries, followed by a declaration of war against the Holy Roman Empire in August 1636. However, his efforts quickly met with disaster: after the initial French offensive Spanish and Imperial troops counter-attacked and invaded French territory. The Imperial general Johann von Werth and the Spanish commander Cardinal Ferdinand Habsburg ravaged the French provinces of Champagne, Burgundy and Picardy, and even threatened Paris in 1636 before being repulsed by Bernhard of Saxe-Weimar. Bernhard's victory at the battle of Compiègne drove the Imperial armies back; and others in the Rhineland in February-March 1638 – Bernard's victory at the battle of Rheinfelden and taking of Breisach – forced them back into Germany.

The Swedes under Johan Baner and Count Lennart Torstensson won a decisive victory over the combined Imperial and Saxon army in the battle of Wittstock in September 1636, and the Emperor Ferdinand died in February 1637, succeeded by his son Ferdinand III. That year the Imperial infantry reached their peak strength of 66 regiments, but neither side could achieve a truly decisive result. At Chemnitz in April 1639 Baner's Swedes defeated an Imperial-Saxon force and later overran Saxony, almost reaching Prague. In November 1642, Torstensson's Swedish army inflicted an even worse defeat on the Imperial army led by the Emperor's brother Archduke Leopold Wilhelm at the second battle of Breitenfeld.

In 1642 Cardinal Richelieu had died, followed by Louis XIII a year later, leaving the throne to his five-year-old son Louis XIV. Facing a domestic crisis in the Fronde from 1645, the new chief minister, Cardinal Mazarin, began working to end the war.

The final years

The Habsburgs were also facing serious difficulties as a result of a series of major defeats suffered by Imperial armies during those years. The Swedish Marshal Torstensson heavily defeated the Imperial armies at the battles of Jüterbog in November 1644 and Jankau, near Prague, in February 1645; and in August 1646 Louis II de Bourbon, Prince de Condé, defeated a Bavarian and Imperial army at Second Nördlingen, which cost the life of the last Catholic Imperial commander of note, Baron Franz von Mercy.

In these last years of the Thirty Years' War – especially after the catastrophic defeat at Second Breitenfeld, where they lost 20,000 out of 25,000 men – the Imperial armies were so exhausted that they could hardly muster more than 10,000 troops in any battle. In May 1648 the Imperial army barely escaped annihilation at the battle of Zusmarshausen, and only the news of the signing of the final Peace of Westphalia in October ended the Swedish siege and successful occupation of Prague.

The post-war army

After the end of the war all the participants faced significant problems in demobilizing their armies, due to the lack of money to pay them off, and the soldiers' unwillingness suddenly to give up the continuous military service which was all they knew. Although Imperial troops were quickly withdrawn from Bavaria, Alsace and Silesia, demobilization was not completely accomplished. In clear contravention of two clauses of the Peace of Westphalia some Imperial regiments were sent to fight alongside the Spanish in northern Italy and the southern Netherlands. In all, 25,000 veterans remained in the service of Ferdinand III; some returned to garrisons in their regimental recruiting areas, but most went to the Hungarian frontier with the Ottoman Empire, which – unavoidably – had been dangerously neglected during the Thirty Years' War. (Luckily for the Holy Roman Emperor, the Ottoman sultan had had his own distractions in a war against Persia.).

The veterans of the Thirty Years' War, commanded by experienced generals such as Piccolomini and Raimond Montecucoli, formed the core of a small but capable standing army, which would later prove itself a match for the Turks, Poles, French and other enemies of the Imperial crown. Some of the regiments retained after 1648 already had a long and continuous wartime history, and became the first regular units of the standing Imperial and Royal Army which would exist until the Habsburg Empire collapsed after the First World War. The oldest regular infantry regiment in the Habsburg army (the future IR 11) had been raised by Julius, Graf Hardegg on 15 May 1629, followed in the same year by the future IR 50 recruited by Max Waldstein. As Habsburg regiments changed their name when the Inhaber (proprietary colonel) was replaced, this regiment was later titled Adelshofen in 1635, Soye in 1639, Henderson in 1643 and Souches in 1645. The future IR 8 was raised by Schifer on 22 November 1642, becoming Knöring in 1646 and then Starhemberg in 1647; and the future IR 13 was raised in 1642 by Train.

Imperial armies during the Thirty Years' War also included Spanish, Bavarian, Saxon and Westphalian units in addition to regiments from the Habsburg 'hereditary lands'. One document from 1635 briefly described the Imperial regiments as being 'from the German, Walloon, Italian and

Spanish nations', and recruitment across the whole of the Catholic Europe meant that the army included not only Austrians, Germans, Czechs, Slovaks, Hungarians, Poles, Italians and Croats, but also Spaniards, Walloons, Irish and Scots. The situation was the same in the other armies; one Bavarian regiment in 1644 had men in its ranks from no fewer than 16 different nations, the most numerous being Germans (534) and Italians (217), with smaller contingents of Poles, Slovenes, Croats, Hungarians, Greeks, Dalmatians, Burgundians, French, Czech, Spaniards, Scots, Irish, men from Lorraine, and even 14 Turks. All were mercenaries, hired for a campaign, and although religious affiliation had some influence most were quite happy to change sides if the prospects for pay or loot were better.

INFANTRY

The Imperial army of the Thirty Years War was organized in three main branches: infantry, cavalry and artillery – although the gunners were still considered to be more members of a commercial trade than a military profession.

The infantry made up the bulk of the force and, following the tradition of Emperor Maximilian's Landsknechts, it was mainly composed of two types: pikemen and musketeers. Firearms had developed significantly during the 16th and early 17th centuries, but the rate of fire was still not high enough to repulse cavalry charges, so the larger number were still pikemen. Their weapon was still considered to be 'the Queen of the Battlefield', but during the Thirty Years' War the proportion of musketeers began to grow. At the beginning of the war the ratio was roughly even, shifting during the later part to 2:1 in favour of musketeers, and towards its end, in 1641, just one-fifth of the Imperial infantry was armed with pikes. These pikemen fought in deep ranks and were specialists in close combat; originally the musketeers were viewed as a support for the pikemen, but the roles would be reversed by the end of the Thirty Years' War.

The Imperial army also included small contingents of other infantry types: 'bucklers' (*Rondartschieren*) and halberdiers were present among the pikemen, while the musketeers also included calivermen or marksmen (*Rohr und Schützen*, or *Jäger*). Bucklers were front-rank infantrymen, protected with armour and bulletproof shields, who were trained to charge



Fighting between infantry and cavalry in front of a besieged city, in a painting by an unknown Dutch artist, c.1640. Note the redoubt with siege guns, protected with earth-filled wicker gabions; a large, pale, tattered flag flies over it, and a drummer stands behind the guns. (HGM)



and engage in close combat. Halberdiers, named after their weapon, might also wear partial armour. The calivermen were recruited from local defence militias, and marksmen from hunters and foresters; armed with calivers and wheellock carbines or rifled muskets, they either fought with the musketeers or as independent units. Together with halberdiers, they also provided the escorts for senior commanders. In addition to the regular Imperial infantry regiments there were also units of irregular light infantry, drawn from the Hungarian Hayduk, Croat and Polish populations of the eastern Habsburg lands and Poland. These troops were armed with muskets, and were formed into regiments or separate 'free companies' with an organization similar to the regulars.

Recruitment

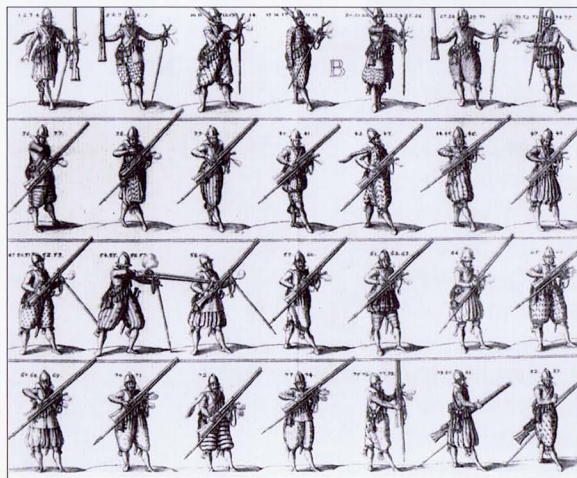
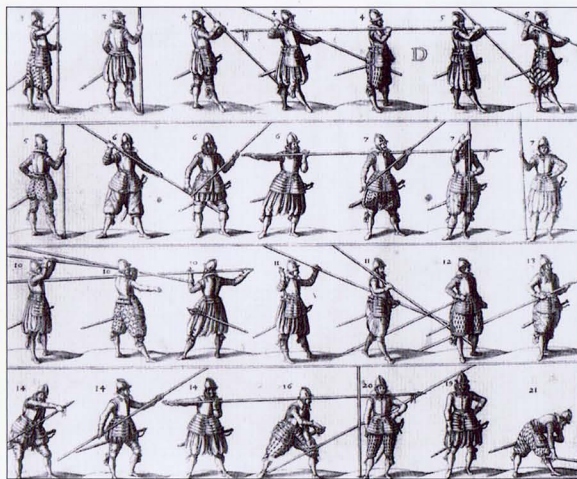
During the 16th and 17th centuries the Habsburg emperors had two types of troops: the local militias or 'land' reserves raised by the Estates (the feudal nobility, clergy and leading merchants, who owned land), and secondly a professional mercenary force. When the sovereign's lands were in danger of attack the Emperor requested the Estates to raise an army. Although it was their legal obligation, these assemblies would indulge in lengthy negotiations over the numbers involved and under what conditions they would be made available. The numbers were based on population records, the nature of the threat and the financial means of each province. Approximately, one man in 30 was called into the infantry and one in 100 into the cavalry, but the most serious threats would permit every tenth or even fifth man to be called up to defend the Emperor's lands. The Estates and towns also provided the clothing, equipment, arms, pay and supplies for these troops. Dragged from their fields and workshops, these peasant soldiers were very poorly trained and disciplined. If there was no direct threat to their own homes they were reluctant to fight, especially away from their own locality for long periods. Quite often they took so long to assemble that they failed to reach the battlefield at all, and even if they did, many usually crept away before any fighting began and returned home.

Combined with the political problems of haggling with the Estates, these weaknesses did not commend such troops to the emperors, who began to rely increasingly on professional mercenaries to form their armies. This entailed raising money from the Estates to pay them – no more popular, but quicker and simpler – although the system of militias was retained for local defence. Mercenaries were raised either by the Imperial central government or through a 'war contractor', who was also responsible for their equipment and supply. As mentioned, when the Danish phase of the Thirty Years' War broke out Emperor Ferdinand II contracted Wallenstein (through Count Questenberg) to raise an army and mount military operations on his behalf. Wallenstein's sphere of activity included both the military and economic: his extensive estates in Bohemia supplied the troops with regular deliveries of beer, bread, clothes, ammunition and other necessities. Recruitment patents (*Articelbriefe Capitulation*) authorized him and other contractors to recruit the required number of soldiers within a specified area, and to appoint the colonels and other officers of these regiments.

Wallenstein selected his regimental commanders from experienced veterans and gave each one ten patents entitling him to recruit ten companies. The commanders in turn would select their own officers and entrusted them with actual recruitment; this meant that the officer ranks of the mercenary armies were no longer reserved for men of noble birth, but were open to capable soldiers and organizers. Accompanied by a band of musicians, recruitment officers would go around the locality broadcasting the fact that troops were being recruited for Imperial service. The pay scales provided precise amounts for each man, dependent on the weaponry he would use and his combat experience. The contract of service usually lasted for six months or, more often, for a campaign or one military season. These volunteers would be entered in the muster rolls by name and abode – giving a false name or particulars was punishable by death. When enough troops had been enlisted they were presented by the recruiting officers to the colonel proprietor, who would arrange for them to be instructed in their duties and in the code of punishments for disobedience. Mercenary recruitment was viewed as just another commercial business from which profit could be made by entrepreneurs, and the system would survive into the mid 18th century.

Training and discipline

These new mercenary troops were thoroughly trained for combat. First, they would learn basic marching and manoeuvre drill in small groups: wheeling on a front, changes of front, various rank distances and reversals of front, together with closing and opening ranks and files. After mastering this marching drill, the soldiers moved on to weapon training. The musket-loading and firing drill was long and complicated, comprising 99 positions directed by 163 orders that took the musketeer automatically through the prescribed sequences as quickly as possible. He had to learn how to use his weapon not only in combat but also on sentry duty. The pikemen had an easier time as their movements were less complicated, although requiring nearly as much time to master. The pikeman learned to carry and control his long and difficultly balanced weapon on the march and in battle formations, to adopt the necessary stances for infantry attacks and holding ground against an infantry or cavalry charge, and how to stand on sentry duty.



Drill with the pike and the musket. (Wallhausen, 1615)

On enlistment, recruits had to take an oath of allegiance under the flag to acknowledge that they were now subject to strict military discipline. As a whole unit, they also took an oath of allegiance when new flags were presented – which by its binding nature necessarily meant that a unit that was captured with its colours followed those colours into the service of the captors. By contrast, abandoning the colour was the most heinous military offence. Any unit fleeing the field without doing its utmost faced a tribunal sentence which dated back to the Roman martial law of decimation: ‘officers lost their honour, life and property, while every tenth common soldier chosen by ballot was hanged’. Commanders who surrendered places entrusted to them before their superior considered it had been necessary might also be executed as an example.

Beheading with a sword was regarded as the most honourable kind of execution, and was usually the privilege of noblemen and officers; the lesser ranks were usually hanged, which was also the punishment for mutiny and – officially – for desertion. Although mutinies were rare, all armies of this period suffered high rates of desertion, usually provoked by unpaid wages or poor conditions. As this seriously reduced the numbers in the ranks, deserters were in fact rarely executed, as an incentive for them to return to the colours. An order issued by Imperial headquarters in 1641 directed that deserters should only be executed for a second offence.

Despite all these efforts, the origins of these mercenaries among the rougher elements of many different nationalities and faiths meant that discipline was naturally poor. To preserve a semblance of order, more or less severe punishments were inflicted for mistreating subordinates, refusing orders, stealing, duelling and fighting. These punishments were graded from mere additional guard duty, through prison, to flogging, being put in the stocks, or ‘riding the wooden donkey’ – whereby a man was sat astride a sharp trestle, sometimes with weights hung on his feet.

At the close of a campaign or military season, usually before winter set in, mercenaries would be disbanded so that they would not have to be paid while no fighting was going on. Left without pay, many would form robber bands that terrorized local populations. However, some regiments were maintained as standing formations, and as the war dragged on this practice increased, the majority of regiments being kept in service and allocated winter quarters at state expense.

A regiment did not disband if its colonel was killed, since a new *Inhaber* would be appointed to take over his predecessor’s duties. Sometimes more affluent colonels could afford to raise two or even more regiments, but this was discouraged, in order to avoid confusion in the army organization and to spread the financial burden. Emperor

Ferdinand II ordered that anyone who did not personally take part in the campaign was not allowed to command a regiment; several former regimental commanders had to sell or hand over their units to other officers, although the new colonels usually had close administrative and financial ties to the former proprietor.

Unit organization

The smallest tactical and administrative unit of the Imperial infantry was a company (previously called a *Fähnlein*, because the soldiers were massed around one colour or *Fahne*). Each full-strength company comprised about 300 soldiers (150 each musketeers and pikemen), divided into platoons (*Korporalschaften*) of 25 men. The next administrative and tactical level was the regiment, normally composed of ten companies.

In theory the regiment had a strength of 3,000 soldiers, roughly broken down into 1,500 musketeers, 300 calivermen and 1,200 pikemen, or sometimes including up to 200 halberdiers and bucklers. However, the patents issued at the start of the Thirty Years’ War in fact authorized the recruitment of regiments of up to 2,000 soldiers, and in the field few units could maintain even half of this strength; a unit of 1,500 to 2,000 men was considered a strong regiment, and it was not unusual for a regiment to be reduced to just 300–500 men. For example, the strength of the Hardegg infantry regiment during 1632–36 ranged from 1,178 soldiers on 24 October 1633 to 600 on 22 August 1636, while company strengths varied between 31 and 291 men, averaging about 100.

In battle, the companies were supposed to form up in 1,000-strong tactical battalions. In practice these formations were often termed ‘brigades’ or ‘battles’, because rather than being subdivisions of a regiment they had to be formed by combining the whole strength of several weak regiments.

Regimental staff

Each regiment had a staff consisting of a colonel (Obrist), lieutenant-colonel (Obristleutenänt), major (Obristwachtmeister or Wachtmeister), quartermaster (Quartiermeister), legal officer (Regiments-Schultheiss or Auditor), provost (Profos) with his men, a surgeon with his assistants, a chaplain and a wagon-master (Wagenmeister). The colonel was usually the proprietor who gave his name to the regiment (colonel-proprietor or Colonel-Inhaber), enjoying extensive prerogatives. Usually a military entrepreneur contracted by the Emperor – or, more often, the army commander-in-chief – to raise the unit, the *Inhaber* exercised jurisdiction and penal authority (*ius gladii et aggratiandi*) over all members of the regiment, including associated women, children and sutlers. He had the right to nominate officers, devise the regimental regulations, organization and drill, and to design many aspects of the uniform. Since the colonel-proprietor was rarely present in person, actual field

Vienna mannequin in German pikeman’s armour, c.1620. Compare with photo on page 6; note the *Birnhelm* helmet instead of a morion, and the lack of pauldrons. His clothes are brownish-red, and grey leggings are worn over his red stockings. (HGM)



Infantry muskets and rifles from the Thirty Years' War, in the Graz armoury collections.

(Top) Wheellock rifle; used mainly for hunting and target shooting, such rifled weapons were soon seen in the hands of qualified military marksmen.

(Second) Heavy, ornate wheellock musket with an extra matchlock for emergencies; the lock has a blued plate, external wheel, two cocks and a safety catch. Such weapons were usually the armament of provincial guards.

(Third & fourth) Two matchlock muskets with octagonal barrels; both feature back- and foresights, pans with swivelling covers and flashguards, and locks with C-shaped cocks and long triggers, but they have different buttstocks. The upper weapon has a heavy German hexagonal butt, and the lower one a typical Dutch butt of the 'classical' form with a thumb cut-out. (LZH)



command and day-to-day administration was exercised by his deputy the lieutenant-colonel.

Although they commanded a regiment or a battalion, officers of staff rank also commanded a company of the regiment, for which they received additional pay. Usually, the first company was called the colonel's own or Life Company (*Leibkompanie*), the second was the lieutenant-colonel's and the third was the major's, each senior officer delegating practical company command to a captain-lieutenant (*Kapitänleutenant*).

The administrative staff of the regiment included a quartermaster, who was in charge of accounting and secretarial work, to which was later added the billeting and provisioning of the troops. The Auditor was the legal officer, although discipline in internal matters such as desertion, mutiny or fighting was enforced by the Provost, usually a captain, who headed a squad of regimental military police including an executioner. (The army staff included a Provost-Marshal, the final authority on all matters of discipline and law-enforcement.)

Regimental priests or chaplains came mostly from the Jesuit or Franciscan orders, and rudimentary medical care was directed by surgeons. From 1643, supreme ecclesiastical authority over army and regimental chaplains was the responsibility of the Emperor's own Jesuit confessor acting as *capellanus major castrensis*, and spiritual welfare for armies in the field was the responsibility of a Feldsuperior.

Company staff

Each company had three officers: a captain (*Hauptmann*), lieutenant (*Leutenant*) and ensign (*Fähnrich*). The NCOs were a sergeant-major (*Wachtmeister/Feldwebel*), the accountant (*Fourier*) and sergeant (*Führer*), clerk (*Unterschreiber*), medical staff (*Feldscher*), up to 12 corporals (*Korporal*) and 20 lance-corporals (*Gefreite*), two drummers or fifers, and around 300 soldiers (*Fussknecht*). The officers and NCOs constituted the company staff, also known as the *Prima Plana*, as they were listed on the first page of the muster roll.

The captain was responsible for the company and most of his duties were administrative, including pay, equipment, discipline, training and garrison duty. In the field, his position was at the front of his troops. The lieutenant assisted the captain in all these tasks and deputized for him in the captain's absence. He would also arbitrate on and judge minor disputes, reviewing major offences before passing them on to the higher authorities. His other duties were to manage equipment, set and check the watch, direct the baggage train, arrange help for the sick and wounded, and ensure the maintenance of the chain of command. In the field, he would be positioned on the opposite flank from the captain.

The ensign would assume command in the absence of the captain and lieutenant, but his main responsibility was the company colour. He commanded the bucklers or halberdiers directly. Positioned in the centre of the company, where he and the colour would act as a rallying point, he was allocated a drummer. On the march and while assaulting forts the ensign was at the front, so he was usually well armoured. He also reviewed the guard. During the earlier part of the war the flag was carried by a selected soldier, but later this onerous task was performed by the ensign. It was always considered a special honour, but it was hazardous and so demanded great courage and prowess with arms, as is apparent from this description from Germany from the early 17th century:

I confide this colour to you. You are to bear it as befits a loyal warrior. You are to raise it over honest men and not allow it to fly over traitors. On the march and on sentry duty, during assaults and in battle you are to serve as a model of martial courage. Never yield or give cause for the army to lose heart and flee. If the enemy cuts off your right hand, grasp the colour with your left. If you lose both hands, hold the colour between your teeth. You are to protect it as long as you live and breathe. If, God forbid, you have to give up the struggle, wrap yourself in the colour and die.

This was not mere rhetoric; a colour captured by the Swedes and kept in the church in Riddarholmen bears the note: 'Imperial colour in which an ensign wrapped himself after the loss of a battle, allowing himself to be murdered out of zeal for the Catholic religion.'

The sergeant-major was the senior company NCO and assisted the captain in his duties. He was usually the most experienced soldier in the company, a man of integrity and great bravery. The sergeant's main responsibility was the maintenance of order and efficient drill, which also involved arranging the men by height and overall size on parade. Corporals and lance-corporals stayed with their platoons and were in charge of the soldiers on a day-to-day basis; they trained them and looked after them, their arms and equipment. Sometimes corporals commanded the specialist weapon platoons of bucklers or calivermen. Each company usually had two musicians, drummers or fifers, who received better pay than the common soldiers. One was allocated to the ensign and the other was positioned among the troops to give the signals for forming up, marching, alarm, charge and retreat, as well as performing ceremonial and official functions. The fifer usually played a short fife but it could also be a long flute. Although musicians were usually adults, it was not unusual to employ a boy drummer.

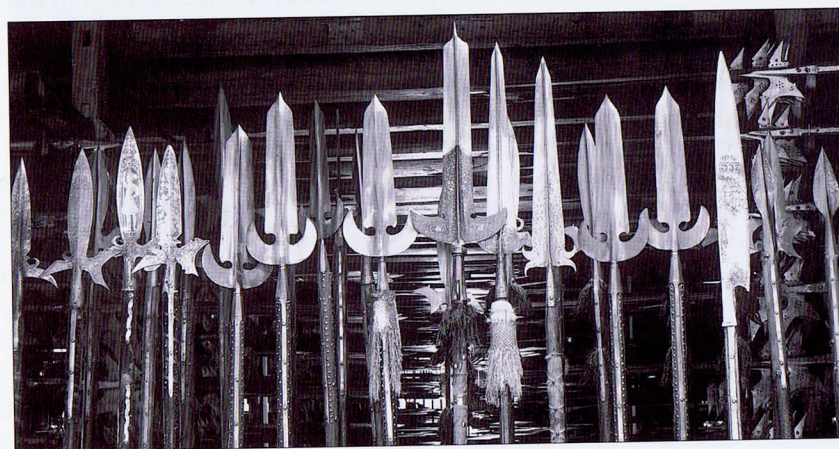
The rank and file

Among the infantry of the 16th and 17th centuries the more prestigious weapon was the pike. It was more fashionable to be a pikeman than a musketeer, because the strongest and best-paid men were armed with it – their status was reflected in their nickname of ‘double-pay earner’ (Doppelsoldner), because they received double the musketeer’s rate of pay. Their main task was to defend the main body of troops against cavalry. Bucklers and halberdiers were usually drawn from among the pikemen, although they were better armoured. The small force of sword-and-buckler men were positioned in the first rank as protection for the musketeers or pikemen, but were most useful in sieges. Halberdiers supported bucklers, and were used to guard wagons, ensigns and key positions.

Musketeers fought in deep formations, both in the advance and defensively. Formed units of calivermen had already disappeared from the field army in the early years of the 17th century, but their lighter firearms continued to play an important role throughout the war; they were stored in large quantities in the arsenals and thus continued to be an important weapon for the city militias, as they were as easy to fire from walls and other fortifications. The calivermen and marksmen (Jäger) were more mobile and precise, and thus would be deployed as skirmishers away from the main formations. The irregular infantrymen from the eastern crown lands, mostly Hayduks or Croats, were deployed in regiments of 500–1,000 men, but rather more loosely than their regular counterparts, and their commanders did not enjoy many of the regular Inhabers’ privileges. Together with the mercenary regiments of Polish infantry, the Hayduk and Croatian light infantry usually fought as skirmishers or in support of the light cavalry.

The baggage train

The army naturally required support services, especially armourers and gunsmiths, together with various craftsmen such as carpenters, cartwrights, masons, blacksmiths and butchers. All the army’s equipment was carried on carts, wagons, horses or pack-mules driven by wagon-masters, who might be responsible for some very long baggage trains. The Thirty Years’ War was the heyday of the baggage train (*Tross*), which was little short of a city on wheels, to provide the necessary shelter in a predominantly hostile environment and the logistical requirements of any army. In terms of



17th-century pole-arms for officers, NCOs and bodyguards; note the various styles of halberds, partizans, a glaive and spears. (LZH)



The battle of Lützen, 16 November 1632. On the right is a group of soldiers with sutlers, a boy playing with a dog, and a soldier’s wife nursing her baby. Note on the left the decoy battle formation devised by Wallenstein: this group of wagon drivers, baggage boys, women and other camp-followers were supposed to cover Wallenstein’s weak point – compared with the orderly battle formation in the background they are a fairly ragged mob. (HGM)

people, the train included sutlers, soldiers’ wives and children, camp-followers (mistresses, servants and prostitutes), together with non-military hawkers and craftsmen. Sometimes the baggage train would make up 50 per cent of the total army or unit strength, with the number of camp-followers occasionally even surpassing the number of troops. Three Calvinist pastors of Bergen-op-Zoom, when the town was besieged by the Spanish army of Flanders, recorded that ‘such a long tail on such a small body never was seen... such a small army with so many carts, baggage horses, nags, sutlers, lackeys, women, children and rabble, which numbered more than the army itself’. In 1646 one Bavarian infantry regiment consisted of 480 troops accompanied by 74 servants, 314 women and children, 3 sutlers and 160 horses. The situation did not improve even after many units were disbanded: in 1650, 500 Imperial musketeers marched into Styria accompanied by 400 women and 200 children.

Non-combatants from the baggage train were sometimes put into military roles. In an attempt to disguise the weakness of his left wing in the battle of Lützen in 1632, Wallenstein drew them up into fake *ad hoc* battle formations. He intended to replace them as soon as Pappenheim arrived with reinforcements, but the ferocity of the Swedish attack put them to flight, spreading panic in the Imperial army’s rear.

The high command

In the course of the Thirty Years’ War a stable hierarchy of command was established, comprising a few general ranks. Officially, the commander-in-chief of all armed forces was the Emperor himself. However, after Emperor Maximilian I (r.1493–1519) the Habsburgs were not considered to be a military dynasty, so they appointed deputies, usually with the rank of lieutenant-general (Generalleutenant), although the terms Generalissimus (supreme commander) and Obrister Feldhauptmann were also used. The danger of granting complete powers to over-mighty subjects such as Wallenstein soon became apparent, so from the mid 1630s supreme command reverted to members of the Habsburg family – the future Emperor Ferdinand III, commander-in-chief 1634–37, and

A mounted officer, with his drummer close by, sits his horse beside two regimental guns. At left is an NCO with a pole-arm, at right a formation of pikemen with officers, NCOs and the colour.



later his brother Archduke Leopold Wilhelm, commander-in-chief 1639–43 and 1645–46. Other general ranks included field marshal (Feldmarshall); general of the infantry/ cavalry (General über die Infanterie/ der Cavalerie) and their counterpart for the artillery, the general of the ordnance (General-Feldzeugmeister); lieutenant-general (Feldmarshall-Leutenant), and major-general (General-Wachtmeister or Generalfeldwachtmeister). The commander-in-chief usually had a personal staff and a large escort of several companies of infantry and cavalry.

Since warfare had been based on provincial defence systems and on mercenary troops there had been little need for a permanent administrative agency. However, from the middle of the 16th century the central military authority was the High War Council (Hofkriegsrath), which handled organizational and administrative matters, usually in conjunction with the other Imperial and provincial authorities. It was also the supreme legal authority for the armed forces, and handled all correspondence between the Emperor and his commanders in the field, as well as the most important matters concerning appointments to the generalcy and senior command posts and the selection of regimental Inhabers.

Three 17th-century officers' swords. Their blades are of better quality than ordinary weapons, and the handguards are in the elaborate forms made in Germany, Italy and Spain. (Brkić Collection)



The officer corps

Just as whole regiments in the Imperial armies could be raised by private individuals, so individual officers' commissions could be bought and sold. Consequently, experience and ability were often sacrificed to wealth or influence, since a young officer who was rich and/or noble-born, with good connections but with little combat experience, could become senior to long-serving officers. Recognizing the potential problems, the authorities implemented some safeguards: no one without prior service could advance too far, while serving officers could only purchase the rank immediately above their existing level, and then only after a certain period of service.

The officer corps of the Imperial army, in the Thirty Years' War as throughout its history, was thoroughly international and cosmopolitan, attracting many foreigners. Their motivation was usually adventure and promotion, but the mix was also a result of deliberate policy, which sought to ensure the direct loyalty of the army to the Habsburg dynasty; foreigners lacked personal connections to Imperial provinces and groups of nobles. Among them the Italians were the most highly esteemed, although many prominent officers were drawn from the wider Empire in Germany, together with a steady inflow of Catholic Scots, Irish and French.

The officer corps was also socially very permeable. Ambitious men of humble origins could rise to the highest ranks – for example, Peter Melander von Holzappel (1585–1648), who was born the son of a poor farmer but reached the rank of field marshal, ennoblement as a Graf and appointment as commander-in-chief of the Imperial army. The sale of commissions never excluded a career open to the talents for the outstandingly able. Although most were Catholic, which suited the conservative Catholic Habsburgs, religion was no bar either, not least as the demands of war on manpower meant that no exclusion could ever be enforced. Even at the beginning of the Thirty Years' War there were mutterings about the majority of all soldiers and even the officers of the Imperial army being Protestants. Although this was an exaggeration, religion was a matter of indifference to the likes of Wallenstein, a convert himself. Von Holzappel was a Calvinist of humble origin, and in cases such as his permission to remain a Protestant was normally granted, although senior officers intent on reaching the highest echelons were advised to convert to the Catholic faith.

TACTICS

The most popular and best known tactical formation of the Imperial infantry during the Thirty Years' War was deployment in huge battle formations called *tercios*, formed by a large square of pikemen with smaller squares of musketeers at all four corners. The formation first appeared in Spain in 1534, and was initially composed of 12 companies of 250 men, each company being subdivided into ten squads (*esquadras*) of 25 men. The Imperial army used a *tercio* numbering 2,000–3,000 men, which was divided in 60–100 files each of 30–50 men.

Although the *tercio* was a large formation it could be also tactically flexible, capable of forming task forces by mixing various numbers of troops and types of weapons. A *tercio* could easily change the direction of fire, for its own protection or to support neighbouring units, although it could not deploy all of its musketeers and firepower at once as a line formation. Although battle formations varied, during the first half of the Thirty Years' War the Imperial army usually deployed in *tercios en echequier* (chessboard), in two or three lines with the wide gaps between each block covered by those in the line behind. In the front line the vanguard was formed by two *tercios*, followed by the main battleline of several blocks, and then the

A bodyguard marksman (*Leibjäger*), c.1620, dressed in a dark green jacket with red shoulder rolls. His elite status is apparent from his light, rifled wheellock, with its ornamented German stock and a backsight mounted on the barrel. (HGM)

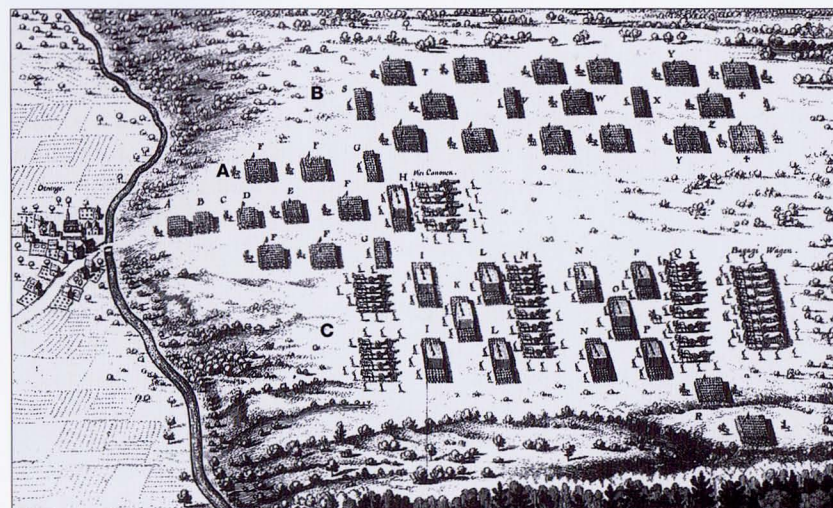


Imperial troops in order of march, heading (right to left) for the siege of Thionville in 1639.

The advance guard (A) is made up of mounted harquebusiers, followed by cavalry, then Field Marshal Piccolomini with his cavalry guard, followed by dragoons; the last two elements are surrounded on the flanks and rear by five squadrons of his new cavalry regiment, and behind the flanking pairs of squadrons are two detachments of 600 musketeers. The rear element of this central column is the 1,000-strong Gerardini infantry regiment, followed by four cannon.

The right flank (B) is made up of 15 square formations of cavalry in three columns, the central column interspersed with three rectangular detachments of independent musketeers.

The left flank (C) comprises artillery interspersed with five-fold formations of infantry, with the pike block in the centre of each element. These are followed by the baggage train, screened (bottom right) by two cavalry squadrons. (*Theatrum Europeum*)

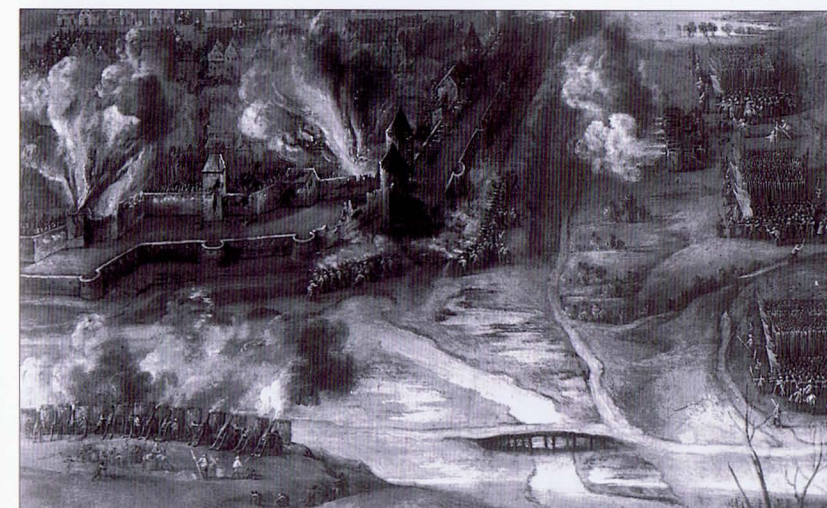


rearguard of another two tercios. The artillery was placed in front, and on the flanks heavy cavalry with light cavalry behind them. Cavalry was sometimes also deployed between individual tercios. Behind the third battleline was the baggage train and camp.

After the failure of the tercio system at First Breitenfeld (1631), where four deep, massive tercios were formed in a single line, the professional Spanish and Italian troops employed at Nördlingen (1634) proved that the tercio system could still contend with the innovative linear formation devised by Maurice of Nassau and King Gustavus Adolphus of Sweden. One advantage the tercio retained over linear formations was its capability for all-round defence should a flank be turned, but its key disadvantage was that the firepower in any one direction was significantly reduced. Consequently, tercios did employ semi-linear formations nine to 12 deep on occasion; but this did not save the formation from becoming obsolete, and its later use was confined to Spanish contingents. By the time of Lützen (1632) Wallenstein had given up this rectangular formation ten ranks deep, while incorporating light regimental cannons into his formations and assigning marksmen to serve alongside the cavalry.

Gradually the Imperial battle formation was changing into the line, with pike and shot now grouped in 'battles' or 'brigades'. These were made up of a block of pike on a double frontage (i.e. twice as wide as they were deep), with companies deployed in ten ranks of pikemen in the middle and six to ten ranks of musketeers on both flanks and in front. The rank-and-file formation was retained, with the most experienced and best-equipped soldiers placed on the outsides to guard the vulnerable flanks. The block of pikemen was the basis for any formation, even where a ring formation was used for defence (the brigade formation developed as required for particular situations). Enemy formations could be attacked by the 'push of pike' rather than with cut-and-thrust; detachments of musketeers and calivermen could be deployed as a skirmishing screen out ahead to soften up the enemy formation, or might be placed in ditches, behind walls or in buildings for defence. The skirmishers would fall back on the main formation if they came under serious attack themselves.

Loading matchlock muskets was a time-consuming process, so the musketeers used a rolling line formation, with the front rank or two being



The siege of Neuburg am Walde in 1641, by Pieter Snayers. Note the two siege-gun batteries (bottom left and centre right); and (right) the Imperial regimental formations, with pikemen in the middle, musketeers on the flanks, and all the colours to the front. (HGM).

successively replaced by the ranks behind. The first rank fired its volley and then split in two, clearing the front and marching back down the sides or between the files, to reform and reload at the rear. Consequently, a steady volley fire could be maintained. If charged by enemy cavalry or infantry the musketeers would withdraw behind the pikemen, who were better equipped for close order combat. As this rolling line replaced the tercio, the musketeers also started to fire by volleys from three ranks at the same time, with the first rank kneeling, the second hunched down and the third standing upright. The result was the musket's growing domination of the field and a steady increase in the proportion of musketeers. At Lützen, Wallenstein adopted a system of 'independent musketeers' who fought without pikemen in support, tasked with providing additional firepower by firing volleys to support or repulse a charge.

On the march, all the pikemen of the regiment were positioned in the middle and were surrounded by musketeers deployed in three ranks. Bucklers were followed by musketeers, calivermen, and then pikemen. Halberds would go to the centre of the pikes, and other musketeers and calivermen would be behind them. Smaller armies marched in one column, larger ones in two or more parallel columns, protected by a screen of light cavalry. When the Catholic League army marched out of camp at Leipzig in 1631 it was formed in two columns, the left made up of the cavalry of the left wing, while the right comprised the rest of the army – infantry, artillery and cavalry of the right wing. During Piccolomini's march on Thionville (Diedenhof) in 1639 the bulk of the Imperial army following the vanguard also marched in two columns, the left made up of infantry, artillery and baggage train with a cavalry screen, and the right made up of cavalry with detachments of 'independent musketeers' in between.

On campaign and during sieges armies spent long periods in fortified camps, normally moving only when local supplies had been exhausted. Only officers had tents, the rank-and-file making bivouac shelters of branches and straws. (Sanitation and hygiene were primitive, and a camp could usually be detected by its smell long before it came into view. Camping for any length of time thus condemned armies to endemic dysentery, and often to lethal outbreaks of typhoid fever which could cause as many deaths as a major battle.) Quite often an army would stay

encamped for a long period of time, sending out sorties or reconnaissance expeditions. This might result in large battles near these camps, such as Alte Veste (1632), where Gustavus Adolphus repeatedly formed up for battle and challenged Wallenstein to come out of his fortified camp, but without success. As his supply situation worsened the impetuous king attacked the Imperial camp, but suffered a costly defeat.

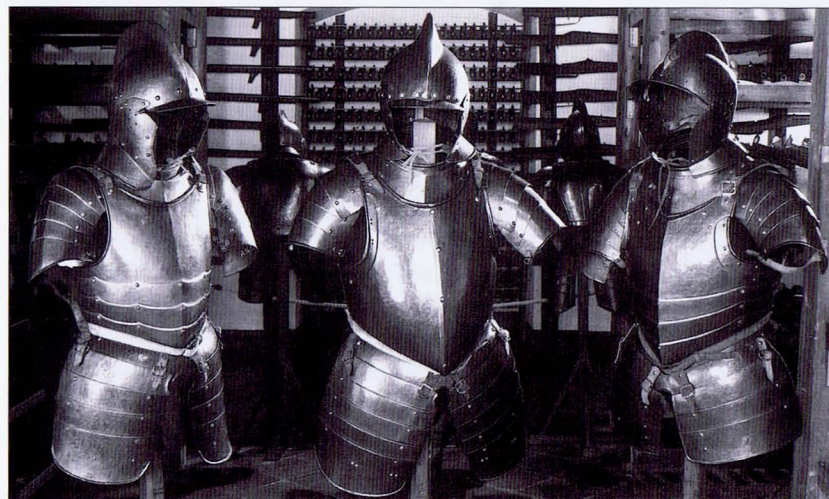
EQUIPMENT

ARMS & ARMOUR

According to an extract from an order given to an armourer in Würzburg for arming and equipping an infantry regiment, the unit needed: ten standards, ten partizans, 50 officers' halberds and partizans, 31 drums, 20 fifes, 1,200 sets of armour, 1,000 pikes, 200 pairs of iron gauntlets, 200 halberds, 1,500 muskets, 1,500 forked musket rests, 1,500 bandoliers, 1,500 powder flasks with cords, 1,800 powder horns, 300 rifles and calivers, 600 powder flasks without cords, and 1,851 buff coats. A 1625 pricelist, also from Würzburg, gives the approximate cost of equipping one regiment. The price of a standard was 61 Reichstalers, a halberd 1 and a partisan 2, while a pike cost 5 Reichstalers. One cent of powder cost 40, a match-fuse 6, a drum 4, a musket 3 and bullets for a musket 6 Reichstalers.

Pikemen

The pike consisted of a short iron rhomboid-shaped pointed head on a wooden staff. The staff in the Netherlands, Germany and Switzerland was between 4.2m and 5.1m long (approx 13ft 9in and 16ft 9in), and in France between 3.9m and 4.2m (12ft 10in and 13ft 9in), but the actual length often varied even within the same regiment. The heads were of two types: a broad, flattish leaf shape for use against unarmoured soldiers, and a square- or triangular-section spike for use against armour. The socketed head was attached by 30-50cm long (11in-19in) steel strips to a staff usually made of ash wood, which also had a steel ring at its base. For close combat pikemen would also carry a 'hanger' or a broadsword, in a leather



Infantry armours in the Graz armoury, comprising burgonet-style helmets, gorgets, breast- and backplates, pauldrons and tassets. Such pikeman's harness might weigh anything between 8kg and 16kg – roughly 18lb to 35lb. (LZH)

PIKEMEN, 1618–40
1: Pikeman in German armour
2: Pikeman in Graz armour
3: Front-rank infantryman
4: Corporal









THE HIGH COMMAND
1: Albrecht von Wallenstein
2: General officer
3: Bodyguard soldier



ARTILLERY
1: Gun captain
2: Gunner with ramrod
3: Gunner with swab
4: Gunner with powder-scoop



MILITARY MUSIC

1: 'Jingling Johnny' (Schellenbaum)

2: Drummer (Tambour)

3: Fifer

sheath either from a leather baldric or a waist belt, with a dagger; various sword patterns were in use, even within the same regiment. Some pikemen carried one or two pistols.

There were two types of pikemen: armoured, who were expensive and therefore relatively rare, and the much more common unarmoured pikeman, known as '*Picche Freeche*' – 'light' or 'bare pike'. Although Imperial armies included both types their pikemen tended to be more armoured than their opponents, especially the Swedes. Pikemen usually wore German or Dutch armour, although Italian-style was also used; it consisted of breast and back plates, a gorget, pauldrons, tassets and a helmet. A peascod-bellied breastplate would be ideal to deflect points and protect against long-range bullets. The helmets came in three styles: burgonet, morion and Birnhelm. The burgonet was a semi-closed helmet, with cheek pieces and sometimes a high comb. The Spanish morion was a helmet developed from the kettle-hat of the late Middle Ages, characterized by a high comb and the brim angled down at the sides, but rising to a point at front and rear. The German Birnhelm was similar to a morion, but with only a small comb and a narrow brim all round. Apart from pikemen, helmets were mostly worn by guard troops, NCOs and officers. Ordinary soldiers usually had plain black helmets, which were sometimes decorated with patterns of rivets, or feather plumes in red, green, white or a regimental colour. Guard troops' helmets (usually morions) were sometimes decorated across the entire surface with intricate Moorish-style engravings, scrollwork or hunting motifs. Helmets and armour were often blackened, burnished or painted to prevent rusting.

As the war progressed some armour was abandoned by most of the armies, although Imperial infantry retained most of theirs until the early 1630s, when the gorget, pauldrons and tassets were among the first items to be abandoned. Bucklers were likewise protected by armour and a helmet, and also carried a small round or oval shield (buckler, targe or rondache) from which their name is derived. Their armament consisted of a broadsword and, optionally, wheellock pistols. Halberdiers were also armoured, carrying both halberds and swords.

Pole-arm was a general term for the group of wood-shafted weapons with some kind of blade and/or spike at the top, which were usually partizans and halberds, although including boar-spears and glaives. A partizan had a flattened, double-edged metal blade with lugs protruding from the sides at its base; the head was often decorated by engraving, making it a popular ceremonial weapon for officers and guard troops. The halberd was similar except that it had a small axe blade at one side of the shaft head and a hooked blade at the other, forming an elaborate metal head. The boar-spear was a short, heavy spear with two small protruding bars or hooks below the head. The glaive had a single-edged blade, sometimes with a small hook on the back edge to catch mounted troops. It too had a large flat surface suitable for engraved decoration, so was also popular among ceremonial guard units.

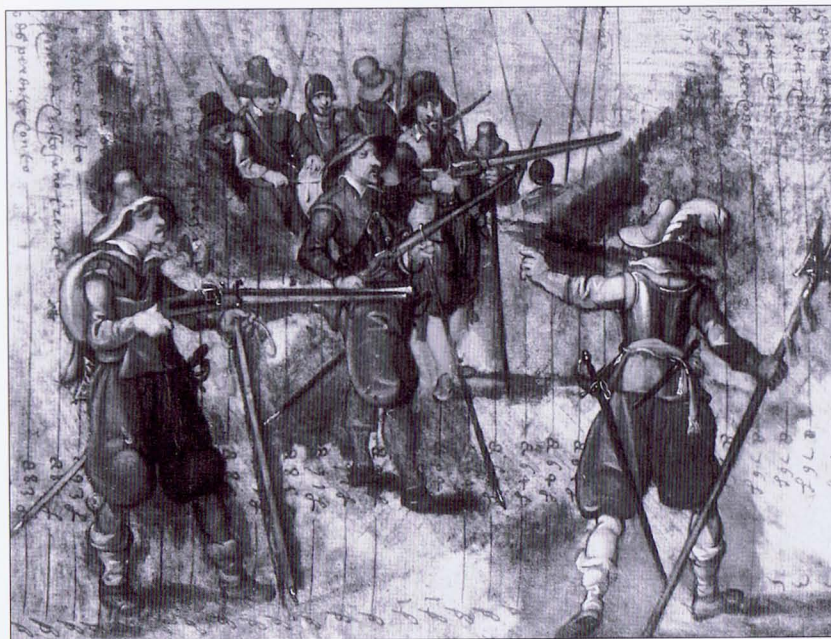
Musketeers

Musketeers were armed with matchlock muskets about 1.5m (just under 5ft) long. Used by the Spanish from the early 16th century, this weapon was generally known as a 'harquebus'. Significantly heavier than a pike,



A broad-bladed infantry sword from the beginning of the 17th century, also known as a cutlass. The shell-shaped handguard would later appear on other types of sword, including cavalry and naval types, and would remain in use until the end of the 18th century. (Brkić Collection)

Three Imperial musketeers in position: an oil sketch by an unknown artist in an Italian trade book. Note (left) the forked musket-rest, the substantial sword, and the tubular 'snapsack' slung over the left shoulder and tied on the chest. The officer (right) wears back- and breastplates and leather gauntlets, and is distinguished by his 'Imperial red' waist sash; he carries a halberd and is also armed with a sword and dagger. Both foreground figures wear leggings over their stockings. (HGM)



the musket's obvious advantage was its range and deadly effect. It weighed between 4kg and 7kg (8.8lb–15.4lb), which was too heavy to fire with a steady aim from the shoulder without a support, so the musketeer carried a fork-topped rest. Musket were of 18mm–20mm calibre (0.7in–0.78in), and had a range (though not an accurate one) of 150 to 200m or yards.

An experienced musketeer required from one to three minutes to reload his weapon, so he also carried a sword or dagger to protect him if caught unloaded. The swords were usually cheap and of low quality, so many musketeers preferred to use the musket butt as a club in close-quarter fighting. The simplest style of musket rest (Muskettengabel) was a staff with a rowlock-like fork at the upper end in which the barrel was rested for firing; later, one of the fork prongs was sometimes extended and pointed to form a defensive weapon against cavalry. Some musket rests had a long spike concealed in the shaft, which sprang out when a small cover at the base was removed. Known as swine's (or Swedish) feathers (Schweinfeder), they were pushed into the ground to protect musketeers while they were loading.

The musketeer carried his ammunition on a leather bandolier strap from which were hung eight to 12 small wooden tubes each holding a single measured load of powder; his lead shot was carried in a leather bag, and a metal oil can was also sometimes attached. The finer-corned priming powder was carried loose in a wooden flask or horn. A coiled matchcord fuse up to 4m–6m long (13ft–19ft) was carried either attached to the bandolier or belt or loosely around the neck. On the march, every tenth musketeer had to keep his match lit so that the others could get a light from him in the event of a surprise attack.

Musketeers very quickly abandoned their armour except for a helmet. As its low brim prevented a soldier from bringing his musket to the shoulder the morion was useless, so two variations were introduced before all types were replaced by hats. One was developed from the Birnhelm,

with a higher domed skull rising to a point, a flat or slightly up-curved brim, and sometimes separate lamellar ('lobster tail') cheek and neckguards. A second, later design was better suited to the needs of the marksman: the peak was removable, and the cheekguards hung free, just having a small buckle to fasten a chin strap. While helmets continued to be worn particularly by calivermen to protect themselves against cavalry when skirmishing, musketeers of the Imperial army increasingly abandoned them, and by 1630 they were sporting broad-brimmed hats (often embellished with flowing plumes or feathers, especially when worn by officers). However, wiser musketeers did continue to wear metal skullcaps, called 'secretes', underneath their new hats.

Lighter firearms

A lighter version of the cumbersome musket used during the Thirty Years' War was the caliver (Rohre, Roers, Rör) developed in the 16th century; the main difference was the caliver's smaller bore of 15.9mm (0.6in) – which was supposedly inadequate for use against heavy armour. The caliver had an average barrel length of 130–135cm (4ft 3in–4ft 5in) and consequently weighed less than 4kg (8.8lb), so could be fired without using a rest. Small wheellock calivers were sometimes used by officers as personal weapons, for self-defence and hunting. Calivers could be reloaded more quickly than muskets; powder was carried not in a bandolier of cartridges but in a round flask, carried on the belt by means of a leather tongue (Flaschenhangel or Porteflask). This strap also carried a small priming flask and a bullet pouch; the match cord was wrapped around the belt, and a small sword and a dagger completed the armament. Like musketeers, calivermen did not wear any armour except for the helmet, which they retained for much longer.

Marksmen (Schützen or Jäger) and guard troops (Leibgarde) were armed with expensive wheellock muskets, carbines and rifles; their high cost was due not only to the elaborate firing mechanism but also to the quality of the bore and decoration. Until the 1620s most long wheellock guns also had an auxiliary matchlock for use when the wheel mechanism failed or the pyrites ran out.

The irregular units of Hayduks, Croats and Poles were armed with matchlock or, rarely, wheellock muskets, Hungarian, Polish or Turkish-style infantry sabres, battle-axes, long daggers or knives (many of Turkish origin), and a pike or short lance. They did not wear any armour.

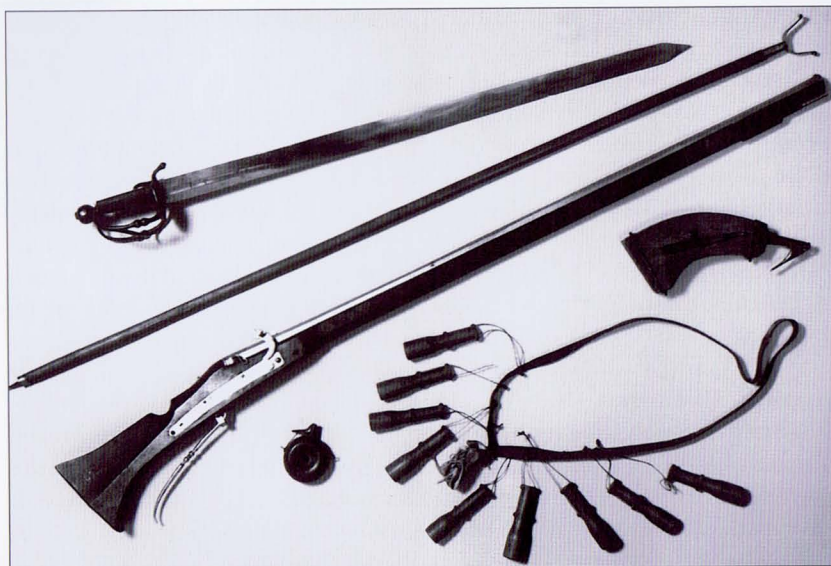
Distinctions of rank

All NCOs and officers carried a pole-arm, usually a partizan, together with their own choice of pistol and sword, but officers of pikemen usually carried a pike. They, and ensigns, were well protected by elaborately decorated armour of superior quality, although during this period the increased power and effectiveness of the portable firearm led to a contemporaneous decline in the wearing of armour. Many officers and nobles retained only the

A caliverman, c.1620. The lighter caliver needed no rest, and was loaded with loose powder from a flask. Note the Birnhelm helmet, with lamellar cheek- and neckguards. (HGM)



Equipment for a matchlock musketeer. (Top to bottom:) Sword; *Muskettengabel* rest; musket; (left to right) small priming flask; bandolier, with bullet bag, and small wooden 'bottles' holding the measured quantity of powder required for one shot – any number between about eight and 12 might be attached; powder horn with measuring nozzle. An alternative to the simple bullet bag was a small, round leather flask fitted with a cut-off nozzle to release balls one at a time. The musketeer also had to carry a roll of *Lunten* matchcord; a flint-and-steel for igniting it in case he could not take a light from a comrade; and a bullet-mould. (LZH)



protective collar or gorget which, elaborately decorated with gilt or brass nails and a red velvet lining, soon became a distinction of their rank. There were three types of gorgets: the common ring for the men, with a simple design and no rivets; the burnished ring with brass nails for affluent infantrymen; and finally, the 'French' ring for officers, with a visible red velvet border and extending further down the chest.

CLOTHING

In the early 17th century there were no uniforms as such. As early as the 1620s Wallenstein had proposed mass production of clothing and equipment, but although he did devote facilities in his own duchy of Friedland to the process his idea was never widely implemented. In part this was due to opposition from the Inhabers, who preferred their regiments to be distinctive in their dress – not least, because money could be siphoned off from central funding allocated for paying local manufacturers. Even when the central authorities took over the supply business from the military entrepreneurs in 1634 their own lack of funds and organizational skills meant that they continued to leave such matters to the Inhaber's discretion.

Consequently, the soldiers were turned out in a mixture of civilian and military styles, many following current civilian fashions. There was some similarity in the more practical clothing. Soldiers wore strong brown or black leather shoes; knee-length socks – sometimes with stout leggings worn over them, resembling floppy-topped riding boots; baggy knee-length breeches; a thick white shirt (usually supplied with a spare); and a jacket with wide sleeves, or a thick 'buff' leather jerkin. In bad weather the troops would wrap themselves in simple hip-length capes or longer cloaks; in winter they kept warm with fur caps, short-haired fur coats or fur-lined cloaks made from thick woollen cloth. The breeches and other garments came in a variety of shades of white, black, brown, red-brown, orange, green, grey and blue. The breeches themselves were tied at the knee with a ribbon, in matching or contrasting colours. Stockings were white, grey or unbleached, although many Imperial troops wore red. Outer clothing

such as coats, breeches and stockings were made of wool, while undergarments such as shirts were usually of linen. It was recommended that clothing should contain as little fur trim and as few seams as possible, since these provided homes for lice. Wide-brimmed felt hats were of various shades of brown or grey; pikemen, who kept their helmets, usually wore a knitted wool cap underneath. Spare clothing, plunder, food and other items were kept in a 'snapsack' or small bag carried across the shoulder.

There is little written evidence about uniform colours from this period, although a clothing order of 1632 from the colonel's company of the Hardegg infantry regiment reveals that the regimental adjutant had ordered material for blue coats, lined in red, as the unit colours had been changed to predominantly blue and red to reflect the Inhaber's coat-of-arms; during 1635 the clothing colour changed again, to predominantly red. If various styles and colours predominated only for relatively short periods in a particular unit, changing on the Inhaber's whim or as the garments wore out, they must have presented a multi-coloured appearance. Fortunately several contemporary artists, such as Sebastian Vrancx and Pieter Snayers, show how units looked at some moments during the Thirty Years' War. The costs of clothing and equipment over such a long period of hostilities led to the widespread adoption of natural-colour, unbleached whitish-grey cloth during the second half of the 17th century, and it was this 'pearl-grey' that became the uniform colour of future Habsburg soldiers.

Officers' appearance differed from that of their men mainly in the superior quality of their clothing, which was usually enhanced by various kinds of ornamental trim. The cut and quality of their dress naturally reflected the fashion of the higher social classes, and they also used such expensive materials as silk, lace, velvet, metallic thread embroidery, fur and leather. Their rank-status was indicated by a coloured sash worn from the left shoulder to the right hip, or wrapped around the waist. Throughout this period and especially during the 1630s, German and Swedish styles dominated military fashion; tight-sleeved jackets were replaced by looser doublets, often made of silk or other costly materials, with long front skirts. They were finished off with wide lace collars instead of the previous stiff Spanish ruff. In contrast, baggy trousers had been replaced by the mid-century with tighter knee-length breeches. Spanish shoes were replaced by riding boots. General officers could wear almost whatever they wished, including gorgets, breast- and backplates and other decorative pieces of armour, all of the finest quality.

The irregular Hayduk, Croat and Polish infantry wore variations of their national costumes. Their small felt or fur caps were sometimes decorated with feathers. Most wore a simple shirt and a jacket (often sleeveless) together with the ubiquitous cloak. Hayduks preferred tied ankle-length pantaloons, while the Croatian trousers were baggy in the upper part and tied at the knee. On their feet Croats wore the simple



This halberd-armed NCO, c.1632, is dressed in a doublet with slashed false outer sleeves, and dark brown trousers decorated with white lace and buttons. (HGM)

Engraved halberds for NCOs, bodyguards or palace guards. The tassels – usually red or yellow – were not merely decorative; they also had the practical function of soaking up any blood that might run down from the head and make the shaft slippery in the soldier's grip. (LZH)



thonged Opanken shoes, while the Hayduks wore Hungarian ankle-boots or even riding boots. Long coats and cloaks, usually hooded and made of heavy woollen cloth or animal skins and furs, were normally worn in bad weather.

The end of the war allowed time for the consideration of standardization and mass production of uniforms, as Wallenstein had proposed. In April 1645 the President of the Hofkriegsrat, Graf von Gallas, sent an order for 600 uniforms for his regiment in which he enclosed a sample of the exact material and shade of pale grey to be supplied; this order and the accompanying pieces of material are still on display at the Army History Museum in Vienna. Gallas also sent samples of powder horns and cartridge belts to be mass-produced by local manufacturers. The results of the post-war advances in mass production of weapons can be seen on display in the vast collections in the almost intact 17th-century arsenal (Landeszeughaus) at Graz, Austria.

Flags

The battles of the Thirty Years' War were made rather chaotic by the mixing of troops from several states, who lacked standard clothing or even some kind of distinguishing badge, while shouting in a wide range of languages. Flags consequently came to have a key role in maintaining each side's cohesion, acting as a rallying point, and sometimes being the only thing that distinguished friend from foe. There were large numbers of flags on any battlefield, because each company would have its own.

Imperial infantry flags came in varying sizes and colours, but their symbols and mottos demonstrated their allegiance to the Imperial family: on the obverse side the Doppeladler (double-headed eagle) with the Habsburg coat-of-arms on its breast, the Burgundian saltire and the Emperor's cipher, either individually or in combination.

Gorgetts worn around the lower neck and upper torso, instead of a full cuirass, as a distinction of rank. Note (top right example) the brass rivets, and remains of the red velvet lining showing above the edge. These examples date from the first half of the 17th century. (LZH)



Another detail from the battle of Thionville; note the two musketeers shown from the back, one with a fur cap and the other with the usual slouch hat. (HGM)

The black Doppeladler had been the heraldic symbol of the Holy Roman Empire since the 15th century, and is usually depicted wearing the Imperial crown with gold haloes around its heads, while holding an orb, a sceptre and the sword of state – the symbols of power – in its gold talons. Initially, the Doppeladler displayed a Holy Cross in its centre and the Imperial cipher, but by the 1630s it had a breast shield bearing the coat-of-arms of Austria – a horizontal silver bar on a field of red, sometimes surrounded by the chain of the Order of the Golden Fleece. By the end of the war some colours carried just the Imperial cipher (FII or FIII), sometimes below the Imperial crown.

The Emperor Ferdinand II's victory at the battle of White Mountain (1620) was ascribed to direct intervention by the Virgin Mary, and thereafter her image began to be applied to the reverse of the colours of the Imperial armies. Constantly waging war throughout his reign, Ferdinand decided to call on her divine assistance for his armies by ordering that all regimental flags (Leibfahne) should carry a portrait of the Blessed Virgin (a tradition which continued until 1915). The Madonna was usually depicted standing on a crescent moon, surrounded by sun rays and sometimes holding the infant Jesus, against a white circular background framed in gold. This design was universal for the regimental flag, which was the colour of the senior or Life Company. Some of these Leibfahnen included a representation of the sun, so their flags became known as the 'Sun Colours'.

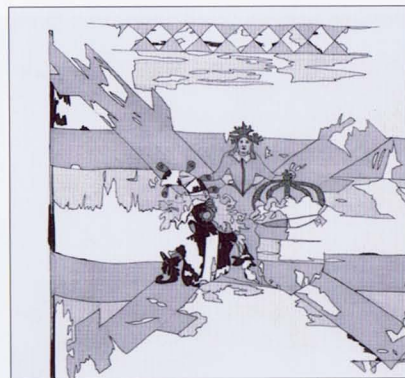
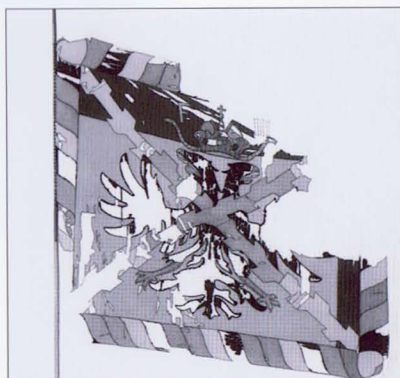
The flags themselves were made of silk, with the central emblems stitched on or, more rarely, painted; sizes varied from 110cm x 150cm (3ft 4in x 4ft 1in) to a huge 347cm x 417cm (11ft 4in x 13ft 6 inches). There was also no regulation for the edging; it was usually a variation on simple or 'flame-shaped' triangles in the main colours, but some flags had hearts, squares, diamonds and even chequered borders. The primary symbols were fairly standardized, but the decision about the background colour of other flags was left to the regiment's Inhaber, who usually chose the main tinctures of his own arms – often blue or green, although others used Imperial red or yellow. However, the regiments' company flags all carried at least part of the same regimental emblem – usually a variation

LEFT:

Careful records of about 500 Imperial flags are held in the Trophy Collection of the Swedish Army Museum in Stockholm. This Imperial infantry colour of an unknown regiment is made of yellow and red silk taffeta with a border of white, black, yellow and blue strips. On both sides is the Holy Roman Empire's primary symbol, the crowned double-headed black eagle. Note also the Burgundian 'ragged cross' saltire over all; this is in yellow where it is superimposed over the eagle, and in white near the corners of the flag. The original Imperial cipher 'F III' is missing. (Armémuseum, Stockholm, ST 8:116; artist Hoffman-Jonsson; photograph Kjell Hedberg)

RIGHT:

A colour from the Vorarlberg militia, whose commander Hans Werner Äscher von Büningen was the governor of Bregenz; it was captured at that town on Lake Bodan in 1646. The central motif is the coats-of-arms of Bregenz and Austria set on a red Burgundian saltire; the red, white and black colours of the arms were repeated in the stripes of the field and on the border. The female figure supporting the shields may represent the Archduchess Claudia de Medici, ruler of Tyrol and Vorarlberg 1632-46 and consort of Archduke Leopold V of Austria; she is depicted in a long gown, a tiara with three gems, and with foliage round her head. (Armémuseum, Stockholm, ST 8:121; artist Hoffman-Jonsson; photograph Kjell Hedberg)



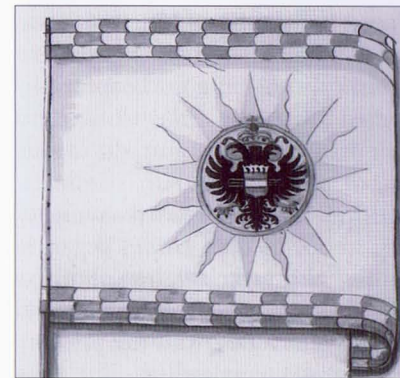
of the Inhaber's coat-of-arms – but on varying backgrounds of red, white, green or yellow. These flags displayed all kinds of symbols, such as Fortuna, Virtue, Vigilance, War and Peace, Life and Death, or various animals or saints; the troops of Wallenstein had carried flags with an image of Mars and Venus. The marksmen had St Sebastian on their flags, while the sappers' colours often displayed St Joseph. Imperial contingents supplied by the Reich's princes all used similar designs, with the state colour as the background, a Doppeladler on the obverse and the prince's arms on the reverse, edged in the state colours (e.g. blue/white for Bavaria).

Mottoes were usually in Latin, but also in German, Italian and even French; they reflected popular sentiments and martial attitudes, although they were much more usual on cavalry standards than on infantry colours. Examples were *Sic transit gloria mundi* (So passes the glory of the world); *Deo duce* (God is our guide); *Auspices fortuna* (With this protector comes good fortune); *In hoc signo vinces* (In this sign shall you conquer), together with the Holy Cross; *Pro imperatore meusque vitam et sanguinem* (My life and blood for the Emperor); and *Unruh ist mein Glück, Friede mein Unglück* (War is my happiness, Peace my misfortune). The symbol of the Jesuit order, as the driving force behind the Catholic Counter-Reformation, also appeared on colours: *IHS* for *Iesum Habemus Socium* (We have Jesus as a companion).

Field signs

To reduce possible confusion in battle in the absence of uniform clothing, units would often display a common *Feldzeichen* (field badge). These often took the form of a particular colour for hat plume, leg or shoe ribbons, hatbands, scarves or sashes, but the choice of colour was unlimited. At the battle of White Mountain, Imperial and Bavarian troops used white symbols, especially sashes and scarves, while the troops of the 'Winter King' wore sky-blue. During the 1631 campaign Catholic League soldiers wore a white stripe or ribbon around the arm, but might also display green oakleaves or hanks of straw. Wallenstein wanted to systematize this practice, so in May 1632 he ordered the use of red symbols in his army, usually as neckscarves or sashes, while all other colours were forbidden on pain of death.

Besides *Feldzeichen*, the other important means of identification was the 'Feldwort', a password and a battle-cry specified before each battle. Wallenstein usually chose Catholic slogans such as '*Jesus, Maria!*'.

**ARTILLERY**

From the time of Emperor Maximilian the Imperial artillery already had some of the most beautiful cannon in Europe, but they were not standardized in size or calibre. When the Thirty Years' War broke out they were still categorized in the same way as in the time of Emperor Charles V: *Kartaune* was the term for quarter- (11-12pdrs), half- (24-25pdrs) and full *Kartaune* (48-50pdrs), with a range of 450-750 paces. *Schlange* included half-*Falkonetts* (½-1pdrs), *Falkonetts* (4-6pdrs), eighth- (6-8pdrs), quarter- (11-12pdrs), half- (20-25pdrs) and full *Schlange* (48-50pdrs), with a range of 120-200 paces. By the 1630s barrels were being manufactured in standard calibres: eighth-cannon (6pdrs), quarter-cannon (12pdrs) and demi-cannon (24pdrs) - although many older pieces remained in service as 'quarter-cannon' of 10-, 12-, 14- and 16pdr calibre.

Nevertheless, the Imperial army was always short of guns. At the beginning of the war Damperre's corps deployed around Krems had just three cannon; Tilly at Breitenfeld (1631) had seven half-Kartaune, three Schlange and two Falkonetts. During Wallenstein's second period as commander-in-chief the situation improved, and Imperial artillery could field 23 half-Kartaune, nine quarter-Schlange, five Falkonetts, two howitzers and 48 mortars. By the time of Lützen (1632) he had 19 cannon, including nine 24pdrs, six 12pdrs and four 6pdrs, as well as – in theory – two regimental cannons per regiment, although somewhat fewer in reality. The highpoint of Imperial artillery came in the battle of Nördlingen (1634), when Ferdinand III deployed 34 heavy and 116 light guns together with four mortars.

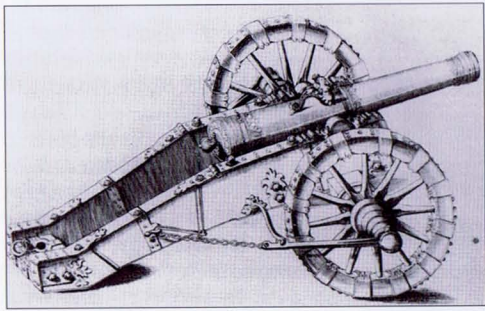
In the Thirty Years' War artillery was a growing presence on the battlefield, but not very effective. It was capable of occasional devastation, notably during Gustavus Adolphus's final destruction of Tilly at the battle of Rain during the crossing of the Lech (1632), where the massed Swedish artillery destroyed the League's army in its camp. On the open battlefield the principal purpose of the guns was to encourage friends and spread fear among the foe, but their actual effect in terms of casualties was rarely significant, since it was limited as much by 'the fog of war' as by the variable quality of the materiel. (There were, however, a few battles like Dessau Bridge (1626) and Nördlingen, when lucky shots hit ammunition wagons, causing casualties and widespread disorder in the resulting explosion.) The artillery's key failing was a lack of manoeuvrability. The heavy (6-, 12- & 24pdr) field guns were concentrated in batteries of up to

LEFT:

This infantry colour of the foot guards of Archduke Leopold Wilhelm was one of 11 taken at the battle of Breitenfeld in 1642. Ten were company colours and one a regimental colour, which differs from the others in having on the reverse a picture of the Virgin Mary and the Christchild. On both sides of the company flags is the crowned Imperial *Doppeladler* surrounded by 16 sunrays. On its breast is the coat-of-arms of Leopold Wilhelm as Grand Master of the Teutonic Knights, with the Teutonic cross covered by the Austrian coat-of-arms. The field is white, with a white-and-red border. (Armémuseum, Stockholm, ST 10:299; artist Hoffman-Jonsson; photograph Kjell Hedberg)

RIGHT:

Infantry colour of an unknown Imperial regiment, 1637-48; on both sides are the crowned Imperial *Doppeladler* and the cipher 'F III'. It was probably originally of red silk taffeta but later faded to a dull white, with a border of yellow, black and white triangles. (Armémuseum, Stockholm, ST 10:341; artist Hoffman-Jonsson; photograph Kjell Hedberg)



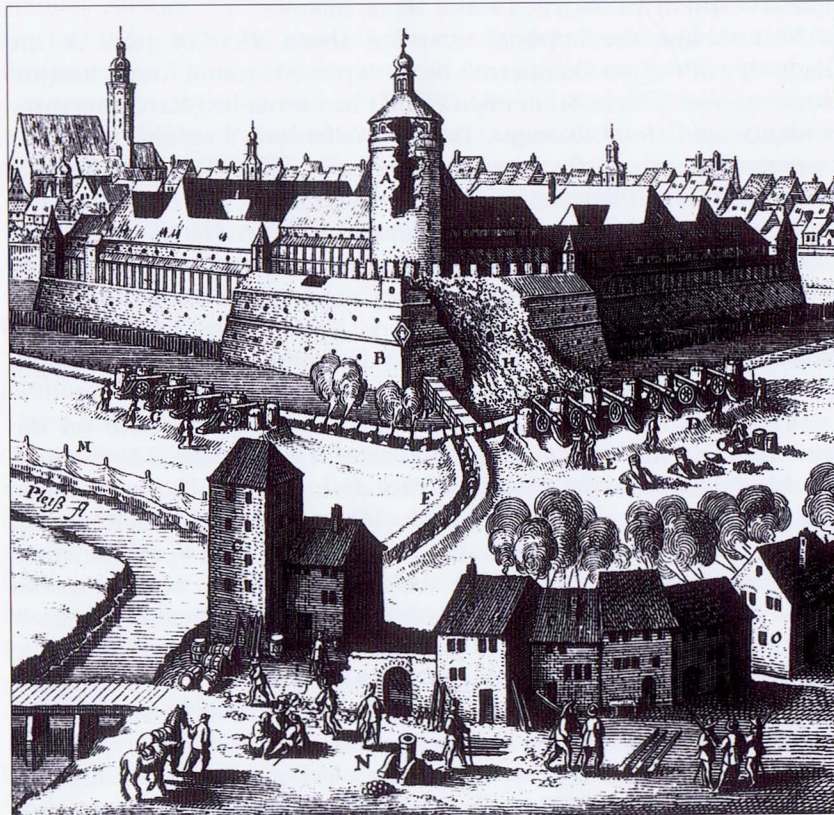
Quarter-Kartaune cannon,
c.1635. (Furtenbach,
Architectura Universalis)

a dozen pieces and emplaced before the battle, and it was almost impossible to move them during the fighting to exploit an advantage without exposing them to capture by an advancing enemy. These guns were fired slowly and regularly throughout the engagement, or just during its opening phase.

However, alongside an increasing standardization of calibres, the Imperial and Catholic League armies began to employ small regimental guns, although in fewer numbers than the Swedes. From 1633 two guns per Imperial regiment became the standard allocation, with the primary

objective of supporting the firepower of the musketeers' volleys. The guns were dragged forward by their crews as the infantry advanced, and were fired as the infantry reloaded. The aim was to smash holes in enemy formations and disorder them before the pikemen and cavalry closed in to decide the issue.

Artillery ammunition consisted of several types of projectiles: solid ball, canister shot, grenade, knife shot, hemispherical ball and chain shot. Solid balls were made of iron, lead or stone, often reinforced with iron hoops. Canister shot consisted of a sheet metal container filled with iron bullets or scrap. Inside a grenade (or shell) was a powder charge detonated by a slow-burning fuse. Knife shot contained four sharp blades inside a solid ball that would break up on leaving the muzzle, although this was really a nautical weapon for use against rigging. Hemispherical ball consisted of two hemispheres that spun apart on discharge to form



The siege of Pleisenberg castle
in 1642. Note the two siege
batteries (left & right), and three
mortars – two behind the right-
hand battery and one in
the foreground. (*Theatrum
Europeum*)

two projectiles. There were many variations of chain shot, although it was usually a pair of balls or bars linked by a chain, or by interlocking sliding rods and eyelets. After discharge the balls would move apart to extend the link, spinning to maximize the damage inflicted as it struck dense enemy formations. Ball sizes were checked against the gun calibre with different gauge plates, rings, compasses or knotted ropes. The patron saint of the artillery and miners was St Barbara, and before firing Catholic troops customarily made a cross sign at the muzzle.

During sieges a small bomb called a petard was also used to blow up gates and walls. It was usually a roughly conical or bell-shaped metal canister containing 5lb–6lb of gunpowder detonated by a slow-burning match fuse. If the petard was secured firmly to a gate or placed inside a mine-tunnel under a wall, this 'shaped charge' focused the explosive pressure of the blast with damaging results. Variations on the design allowed a petard to be secured by propping it against a gate using support beams, or nailing it in place on a wooden frame fixed to the petard in advance.

Although some elements of the military took the view that gunnery was simply a craft and not a military profession, the operation of guns was an art that demanded a solid knowledge of mathematics and technical subjects. This meant that – almost uniquely – the artillery offered the well-educated commoner the chance to pursue a military career to high rank. The designations of rank for officers and gunners and also their pay rates differed considerably from those of the infantry and cavalry. However, with reward came responsibility: when one unfortunate artilleryman failed to hit a tower during the siege of Regensburg (1634) with 24 successive shots, he was hanged for his lack of ability.

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Three bronze mortars from the
armoury of Graz, c.1650; the
bores are 13cm, 28cm and 15cm.
They took either iron or stone
balls – note one of the latter
in the foreground. (LZH)

PLATE COMMENTARIES

A: PIKEMEN, 1618–40

A1: Pikeman in German armour

The armour is simple and without any decoration, except that it is burnished overall and has a red plume attached to the helmet. The armour consists of a *Birnhelm* helmet, an 'Almaine riveted' gorget, pauldrons to protect the shoulders, back- and breastplates, and short tassets over the thighs. His pike has the most common, wedge-shaped point; this has concave edges, a strong central ridge with concave faces, and the extreme point thickened to a rhomboidal section.

A2: Pikeman in Graz armour

This pikeman wears the simple footsoldier's 'ammunition' armour; it is solid and highly functional, without any burnished parts, embossed patterns or ornamental rosettes or rope-pattern edging. It consists of a burgonet helmet, gorget, pauldrons, back- and breastplates and tassets. The tapering point of his pike has a square cross-section, but despite its thickness it was not as strong as the wedged-shaped point in A1 – since the faces of the square points were flat, they would bend more easily under high pressure.

A3: Front-rank infantryman

The infantrymen in the front ranks were usually better protected with helmets and a full set of upper body plate. As late as the mid-period of the Thirty Years' War they continued to carry round or oval shields for protection against firearms; usually known as 'bucklers', these were carried by the corporals directing the pikemen and musketeers, as well as by all front-rank soldiers. These infantrymen wore either open-face burgonet helmets with cheek-pieces, or Spanish morion



helmets as illustrated here. This soldier is armed with a sword and, tucked at the back, a wheellock pistol with an egg-shaped butt of the style popular at the beginning of the 17th century.

A4: Corporal

Officers usually carried a partizan while NCOs carried small halberds, known as 'hunting halberds' although they were never in fact used in the chase; the name derives from the shape of the point, which is similar to that of the boar-spear. Sometimes, in imitation of the real boar-spear, the shaft was covered with leather strips and had red or yellow cord tassels. The corporal is well protected by burnished plate upper body armour: a burgonet helmet, riveted gorget, pauldrons, gauntlets, breast- and backplates and tassets. The upper part of the breastplate is engraved with a cross-brace motif that was popular on German armour of the period.

B: PIKEMEN, 1640–48

B1: Pikeman in light dress

Cheap iron infantry armour was useless against heavy muskets, so as the war went on it was gradually abandoned, at first in favour of 'buff' leather coats and later simply thick woollen garments, while the helmet was replaced with the broad-brimmed hat.

B2: Halberdier NCO

This NCO has also abandoned armour in favour of a hat, leather coat with slashed false outer sleeves, short breeches decorated with buttons and straps, stockings and shoes. Under his coat he would wear a white linen shirt with a fashionable collar wired to stick out horizontally (known as a 'whisk'). He is armed with a short halberd and sword.

B3: Officer

This officer wears the 'black-and-white' half-armour which – alongside three-quarter armour with additional upper leg protection – was mass-produced and exported from southern Germany during the 16th century. Although this armour was falling out of use by the end of the century, some was still being worn deep into the first half of the 17th century. The blackened plate contrasts with the burnished edges of the lames, decorative rosettes around the rivets, and a deeply engraved linear pattern. Blackening and burnishing was intended to prevent rusting; the surfaces of not only the armour and helmet but also of many edged weapons were blackened by applying a mixture of linseed oil and soot, which was burned on to form a permanent black layer. Instead of a helmet he wears a wide-brimmed plumed hat; again, his red waistsash and his partizan show his status.

C: MUSKETEERS

C1: Musketeer wearing a 'secrete' (*Hirnahube*)

Musketeers were usually recognizable by their broad-brimmed felt hats, although some preferred to keep a steel helmet. Although he has adopted the hat, this wise musketeer is wearing under it a 'secrete' or 'capeline', a steel skull cap or frame to protect him from sword-cuts. Many of the new hats were decorated with feathers and/or a hatband in the 'general's colours', as shown here. He is armed with a German musket complete with its rest.

LEFT: An infantry burgonet helmet; see Plate A. (LZH)



Large round buckler shields, c.1610; see Plate A. The armoury of Graz still has 85 such shields of several designs, produced in Nuremberg and bought by the Styrian Estates. They weigh between 8kg and 15 kg (17–33lb) and are 50cm or more (about 20in) in diameter. This type of shield was intended to protect the men in the front rank against firearms, and many of these Graz examples still show the proofing marks clearly. (LZH)

C2: Caliverman

The caliver was (usually) a matchlock weapon, measuring in size between the musket and the carbine, that appeared in the latter part of the 16th century. Its name is believed to derive from 'calibre' – the diameter of the bore. Since the caliver was lighter than the musket and did not need to be fired from a rest, calivermen were often deployed as skirmishers. Thus vulnerable to attack, particularly by cavalry, they usually retained helmets – a simple pot helmet, or the German *Birnhelm* with its cheek and neck protection. In place of the bandolier they used a leather powder flask suspended from the belt on a 'porteflask' by an iron hook fastened at the back, and a shot bag; note that the nozzle of the powder flask has a valve to regulate the amount of powder required for one shot. Other accessories also carried on the belt included the horn for priming powder, matchcord, and a rapier sword and dagger.

C3: Officer

This dandy wears a very stylish and richly-ornamented outfit, which consists of knee-length breeches and a doublet slashed in the body and sleeves to reveal the shirt underneath. The shirt has a lace-trimmed collar and cuffs, his hat is decorated with plumes, and note the lace tops of his boot-hose or outer stockings hanging over the tops of his spurred boots. As signs of his rank he carries a partizan and wears a gorget, and a red sash over his shoulder. His partizan has a broad blade with sharp edges and two crescent-shaped extensions, fixed to the shaft by a socket and langets. He also carries a sword, and his wheellock pistol is suspended from his belt by a hook fixed to the inside of the butt. It is decorated appropriately to reflect his status: the wheel is engraved with thick scrolls around the wheel-spindle, and the black-brown stock is finished with a hexagonal butt cap and scrollwork made of iron wire.

D: REGIMENTAL STAFF

D1: Ensign

This Imperial infantry flag is based on that of Johan Merode's (de Wareux) Walloon regiment, taken at Oldendorf on 28 June 1633. Made of silk taffeta, it bears on both sides blue and white stripes with a red Burgundian saltire, and a golden royal crown with the Imperial cipher 'F' in the centre.

D2: Mounted colonel

Dressed in a fashionable doublet with slashed sleeves, and high spurred riding boots, this colonel is displaying his rank by means of a sash over his burnished breast- and backplates. Note his lace collar and lace-trimmed gloves.

D3: Junior officer

A junior officer was always required to remove his hat in the presence of his superior. This young gentleman is dressed in the latest fashion: a short, tight-waisted doublet with full-length sleeves slashed (or 'paned') to just below the elbow and snug below it, and the stiff, ungathered Spanish breeches that were popular from the 1630s until the 1650s. The last remnant of armour worn is a polished gorget showing a red velvet lining at the edge. His elaborately engraved partizan is decorated with red tassels.

D4: Sutleress (*Markettenderin*)

Sutlers usually joined their wagon to the regimental train, and from there supplied the soldiers with food, spirits and other necessities. This example is dressed in typical 17th-century women's apparel: a white linen blouse and skirt with a black leather camisole, red apron and white cap.

Calibrating compasses and various shot-gauges for artillery; these were not only to check ammunition in the field, but were given to manufacturers as guides to the required calibres. See also Plate G. (LZH)





Austrian infantry colour captured before the Peace of Westphalia, 1648. On the reverse is the crowned *Doppeladler*, and on the obverse the cipher of Emperor Ferdinand III below an open crown. The escutcheon on the eagle's breast comprises the arms of Austria (silver bar on a red field) and of Hungary (red double cross on three green hills against white). The borders are checkered red and white. Compare this late design with the earlier colour on Plate D. (Armémuseum, Stockholm, ST 10:288 & 10.288(1); artist Hoffman-Jonsson; photograph Kjell Hedberg)

E: LIGHT INFANTRY

E1: Hungarian Hayduk

The Hayduk and Croat peoples supplied units of irregular light infantry, which were deployed to skirmish in open formation, prepare ambushes and launch daring attacks. This Hayduk is dressed in his national costume of a knee-length coat and long, tight breeches with low boots, under a sheepskin cloak; his felt cap is decorated with a goose feather. He is armed with a matchlock musket carried reversed on his shoulder, a Hungarian curved sabre, and a small axe tucked in his waistbelt. Also suspended from the waistbelt is a small cloth sabretasche, another characteristically Hungarian item which was later popularized by hussars of many armies.

E2: Croat

This Croat is dressed in a fur-trimmed cap, white shirt, green jerkin and white ankle-length trousers, which are looser above the knee and tied just below. He wears the characteristic Balkan *Opanken* leather sandals and, as protection against bad weather, the famous long, red woollen *Mantle*. These troops were recruited from the borderland with the Ottoman empire, and his weaponry has more of a Turkish and Balkan style. He is armed with a Turkish matchlock musket and a curved *karabela* sabre, and in place of the Hungarian battleaxe he has a long, Turkish-style *yatagan* knife tucked in his wide waistbelt.

E3: Rifleman

The Jäger were recruited among experienced huntsmen and marksmen, primarily from wooded and Alpine regions; they were deployed in small groups, and often formed part of bodyguard units. These small companies of skilled men



would evolve into the regular *Jägercorps* of the Imperial army in the mid 18th century. This rifleman is dressed in his usual hunting outfit of green cloth. He is armed with a hunting sword and knife, but his main weapon is a wheellock gun with a rifled barrel. Such weapons were already in use for hunting and target-shooting in the last quarter of the 16th century; tests at the Graz armoury in 1988–89 suggested that they were somewhat but not dramatically more accurate or longer-ranged than matchlocks, but they had the great advantage that they could be carried loaded, and fired at short notice, without the need for a match.

F: THE HIGH COMMAND

F1: Albrecht von Wallenstein

The army commander-in-chief wears a blackened suit of cavalry armour, comprising a gorget; breast- and backplates in a flatish shape with a less pronounced central ridge; arm protection including pauldrons, vambraces and gauntlets; a loin guard, and leg harness – note the chevron-shaped ridges in the elbow- and knee-caps. He wears a fine lace collar, and the gold chain of the Order of the Golden Fleece around his neck. Usually the armours of senior officers were elaborately engraved in the latest fashion; they were sometimes completely burnished and decorated with various engraved motifs, or, as here, just with brass or gilded rivets. As a symbol of his command status Wallenstein carries a plain red baton with a gold cap.

F2: General officer

This Imperial general is dressed in rather conservative Spanish style, characterized by a ruff; a doublet padded out over the abdomen with 'bombast', false sleeves and lace-trimmed cuffs; short, baggy trousers ('slops') extending to just below the knee, and low-heeled shoes. As rank insignia he wears a burnished gorget with gilt rivets and red velvet trim, together with a richly decorated red shoulder sash with golden fringes.

F3: Bodyguard soldier

This personal bodyguard to a general is dressed in a white shirt with a ruff-style collar and cuffs, a black sleeveless quilted jerkin, baggy hose cut in a 'pear' shape, stockings and low-heeled shoes. Guards were armed with carbines, or pole weapons such as partizans, halberds or, as here, glaives – the broad blade surface was ideal for decorative engraving.



The two main musical instruments used by the Imperial army were the drum and the fife or flute. Musicians would wear whatever their regimental or company officer required, but it was usually of good quality and design with plenty of lace; they also carried a sword for self-protection. Likewise, the drum design probably depended on the Inhaber's wishes. See Plate H.

G: ARTILLERY

G1: Gun captain

The senior gunner in a crew is laying (aiming) the gun with a sighting disk; in his left hand he is holding a gunner's spontoon with two match-holders. Slung over his right shoulder is a powder horn holding the fine-grained priming powder that was poured into and around the touch-hole of the gun. He is dressed in dark colours, which were obviously more practical when handling gunpowder – which left a greasy black residue when fired.

G2: Gunner with ramrod

While holding a ramrod in his left hand, this artilleryman is pointing out the target with his triple-bladed artillery dagger, which was also used to measure the calibre of cannon. The ramrod and a powder-scoop were often combined on one shaft for serving the heavier pieces, especially siege guns.

G3: Gunner with swab

As artillery was considered more a craftsman's trade than a military skill, artillerymen wore civilian costume. In the heat of the battle they would often strip down to just shirt and breeches. The wetted swab, used for damping out embers left in the bore after each shot, was often made from sheepskin, preferably nailed to the staff with brass nails to avoid sparks if they scraped the iron barrel.

G4: Gunner with powder-barrel

In the 17th century powder was carried loose in sacks inside kegs on the battlefield, and loaded into the muzzle with a measuring scoop; catastrophic accidents were not uncommon, even though the scoops were usually made of brass. In the background, note the civilian artillery driver.

H: MILITARY MUSIC

H1: 'Jingling Johnny' (*Schellenbaum*)

Originally Turkish, this instrument was made of small bells and windchimes hanging from a wooden pole; it was played to maintain a steady background rhythm to the band music. One example from the early 17th century is held in the armour collection at Ambras Castle near Innsbruck. This illustration is based on a woodcut by Jacob Sutors from Baden, which was published in his book on swordsmanship from 1612.

H2: Drummer (*Tambour*)

While playing on the march, in battle or in camp, drummers hung their instrument from the right shoulder to the left thigh just in front of their sword crossbelt; when not playing on the march, it was carried slung across the back. These wooden drums, usually 50–80cm (20in–30in) deep, were colourfully painted, usually with a coat-of-arms on a background in the colour of the regimental flag, so they came to be viewed as important potential trophies of war. Apart from maintaining the rhythm on the march, and summoning troops to their duties in camp, drums were important for giving basic signals – e.g. charge, or retreat – on deafeningly noisy battlefields. In place of drums the artillery used bagpipes (*Sackpfeifer* or *Dudelsack*), presumably for their more penetrating sound quality.

H3: Fifer

In addition to drums, fifes and flutes were also used to maintain march rhythms. Musicians were often dressed in expensive livery clothing, made of colourful materials and decorated with ribbons. When not in use, fifers used to carry the fife or flute in a leather or wooden case slung from the shoulder.

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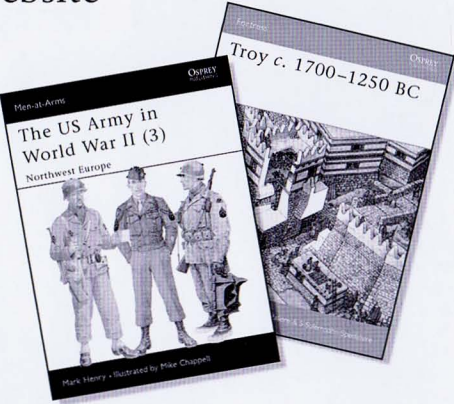
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